THE PARAGON OF
LEONARDO DA VINCI

by

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Introduction

The part of Leonardo's literary legacy which forms the basis for the present study has since Manzi's publication of the Codex Vaticanus commonly been known as the Paragon. The only copy we have of the Paragon is contained in this Vatican Codex, which is accepted as a middle sixteenth century copy from the original manuscripts of Leonardo. Because it appears here with the rest of the so-called Book on Painting, it has been published only in connection with that. However, it forms a distinct division. The rest of the Codex deals with the theory and practice of painting, while the main thesis of the Paragon is the comparison of the arts of painting, poetry, music, and sculpture. For this reason, and because there is more direct evidence for believing that Leonardo intended the Paragon as a separate treatise I feel myself justified in presenting it.

The earliest publication of the Vatican Codex was made in Italian by Manzi in 1817. In 1882 H. Ludwig published it in Italian and German with both the original arrangement and a rearrangement of the sections. And in 1910 the latest publication was made in French by Péladan with another rearrangement of the sections and some interpolations from the original manuscripts of Leonardo that deal with painting. J. P. Richter's publication of selections from the original manuscripts is the only English publication that contains any part of the Paragon. And this part, since it includes only original passages, is

1. Codex Vaticanus (Urbinas) 1270 published by Manzi in 1817.
3. Jordan: Untersuchung über das Malerbuch--;
Péladan: Traité de la Peinture, p. 3. 4. See below, p. 2 ff.
5. Original arrangement-Quell.f.K. v.AV-XVI; rearrangement- v.AVIII.
necessarily very limited. It is important to notice, however, that
these passages published by Richter correspond almost exactly with
their parallels in the Vatican copy.

One who attempts a reading of the Paragon as it occurs
in the Vatican Codex is hindered by the disorder and the
repetitions in the material. The rearrangements of Ludwig and
Peladan do away with some of the confusion. But even there, because
of the composition of the sections themselves, there is some lack
of order and much repetition. The whole aim of my translation has
been to put the Paragon in a readable form, while retaining all
the ideas and the manner of expression and exact wording of the
original, as far as this is possible with English equivalents.
I have omitted repetitions, retaining in all such cases the passage
that seems most expressive and complete, and I have interpolated
a few passages from the original manuscripts for explanatory
purposes. Further, the original order has been changed not only of
the sections but also of sentences in the sections when such a
procedure made a clearer order without distorting the meaning of
the original. In fact, the section divisions have not been observed
nor their headings used. There seems but little point in keeping
Leonardo's arrangement or that of the copyist when it is confused
and only makes the reading difficult because it has not been worked
into a finished whole.

2. Only such divergences occur as would be due to errors in copying.
   See H. Ludwig: Neues Material---, p. 82 ff.
3. e.g., Ludwig: Das Buch von der Malerei- Quell. f.K. v.XV, XVI.
4. The sentence order within the section is evidently Leonardo's
   because of its correspondence with original manuscripts noted
   above. But the order of the sections may, to an indefinite extent,
   be due to the copyist. See H. Ludwig: Quell. f.K. v.XVII,p.1,
In the second division of my work I have attempted an analysis of the Paragon through a study of its parts in relation to each other and in the light of other passages from Leonardo's manuscripts. The purpose of the study has been to determine and make an estimate of Leonardo's theories concerning art in general, and concerning the particular arts and their relation with each other.

The third division I have devoted to a study of the extent of Leonardo's dependence and independence, based upon the writings of his predecessors, and to a consideration of his most direct influence, based upon later writings of the sixteenth century.

And finally, I have attempted a conclusion as to the importance and worth of the Paragon.

While I have considered all of Leonardo's writings on art, my main study for the purpose of this thesis has been upon the Paragon.

I wish here to express my gratitude to Dr. John Pickard for his direction in the work.
Table of Reference for Part I

The numbers in the first column refer to the sections of the Vatican Codex in their original order, as published by Ludwig in v. XV of Quell. f. K. The numbers in the second column refer to the pages of my translation of the Paragon where these sections are contained. Comparisons with these will show my reasons for changing the original order of the Vatican Codex. I give here the parts of the sections that I have omitted in my arrangement of the Paragon, with references to the passages in which these omissions are essentially repeated. Par.- refers to the Paragon, page and line.

<table>
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<th>Section No.</th>
<th>Page</th>
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<tbody>
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<td>1</td>
<td>I-II</td>
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<tr>
<td>2</td>
<td>XX</td>
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<tr>
<td></td>
<td>Omitted: &quot;(la pittura) riceve le similitudini non altrimente, che s' elle fussino naturali; et la poesia le da senza essa similitudine, e non passano all'impressiva per la via della virtù visiva come la pittura.&quot; Cf. Par. XX, 20.</td>
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<tr>
<td>3</td>
<td>II</td>
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<td>4</td>
<td>II-III</td>
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<tr>
<td></td>
<td>In his rearrangement Ludwig has these sections, 3 and 4, follow in the reverse order; but the original order, with the explanation of the point, line, and surface first, seems to me to be better.</td>
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<tr>
<td>5</td>
<td>IV</td>
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<td>Omitted: &quot;(Il secondo principio della pittura) è l' ombra del corpo--- e di quest' ombra daremo li suoi principii e con quelli procederemo nell' isculpir la predetta superficie.&quot; Cf. Par. IV, 13. The &quot;principii&quot; are not given, so this clause means nothing here.</td>
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<td>6</td>
<td>IV, XXX</td>
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<td></td>
<td>Omitted: &quot;Ma quella delle linee visuali ha partorito la scienza dell' Astronomia, la quale è semplice Prospettiva.&quot; Cf. Par. XXX, 7.</td>
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<tr>
<td>7</td>
<td>XXI, XXVI</td>
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<td>8</td>
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<td>9(1)</td>
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|             | Omitted: "La pittura sol e' estende nella superficie de' corpi, e la sua prospettiva s' estende nell' accrescimento e
decrescimento de' corpi e de' lor colori. --- La cosa veduta
dall' occhio acquista tanto di grandezza e notizia e colore,
quanto ella diminuisse lo spazio interposte infra essa e l'
occhio, che la vede." Cf. III, 23.

9(2) Omitted: "I' opere del pitto re rappresentano l' opere d' essa
natura." Cf. Par. VIII, 27.

9(3) This whole section is omitted: "Si proua la pit tura essere
filosofia, perche essa tratta del moto de corpi nella
prontitudine delle loro azioni, e la filosofia anchora lei
s' estende nel moto." Cf. Par. IV, 1.

9(4) Omitted: "Il'opere del pitto re rappresentano l'opere d' essa
natura." Cf. Par. VIII, 27.

9(3) This whole section is omitted: "Si proua la pit tura essere
filosofia, perche essa tratta del moto de corpi nella
prontitudine delle loro azioni, e la filosofia anchora lei
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prontitudine delle loro azioni, e la filosofia anchora lei
s' estende nel moto." Cf. Par. IV, 1.
of it in the division on poetry, where, in deed, most of it belongs. Omitted: "e se tu poeta, figurerai un' istoria co' la pittura della penna, il pittore col pennello la farà di più facile satisfazione e meno tediosa à esser compresa. se tu dimanderai la pittura mutta poesia, anchora 'l pittore potrà dire la poesia orba pittura. or guarda, qual è più dannoso mostr, o 'l cieco, o 'l muto? ---- se 'l poeta serve al senso per la uia dell' orecchio, il pittore per la uia dell' occhio, più degno senso. ---- se la pittura abbraccia in se tutte le forme della natura, noi non haute, se non li nomi, li quali non sono universali come le forme. ---- non s' è egli visto pitture avere avuto tanta conformità con la cosa imitata, che hanno ingannato uomini et animali?" Cf. Par. AXIII, 15; AXVII, 25; AXII, 19 ff; AXI, 29; AXVI, 10.

20

Omitted: "e per l' una e per l' altra si può dimostrare molti morali costumi, come fece Apelle co' la sua calumnia. ---- e se tale armonia delle bellezze sarà mostrato all' amante di quell', che che tale bellezze sono imitate, sanza dubbio esso resterà con istupenda admiratione e gaudio incomparabile e superiore a tutti l' altri sensi. Ma della poesia, la quale s' abbia à stendere alla figurazione d' una perfetta bellezza co' la figurazione particolare di ciascuna parte, della quale si compone in pittura la predetta armonia non ne risulta altra gratia, che si facchessi à far sentir nella musica ciascuna uoce per se sola in uarj tempi, delle quali non si comporrebbe alcun concerto, come se uolessimo mostrare un' uolto à parte à parte, sempre ricoprendo quelle, che prima si mostrarno, il simile accade nelle bellezze di qualunque cosa finta dal poeta, le quali, per essere le sue parti dette separatamente in separatati tempi, la memoria no' riceue alcuna armonia." Cf. Par. AXII, 22; AXVIII, 25 ff.

21

Omitted: "La pittura ti rapparesenta in un' subito la sua essentia nella virtù uisia e per il proprio mezzo, d' onde la impressa riceve li obietti naturali, et anchora nel medesimo tempo, nel quale si compone l' armonica proportioinalità delle parti, che compongome il tutto, che contenta il senso; e la poesia riferisce il medesimo, ma con mezzo meno degno del l' occhio. ---- il quale (la poeta) in questo caso si vole equià parare al pittore, ma non s' avvede, che le sue parole, nel far menzione delle membra di tal bellezza, il tempo le divide l' una dall' altra, u' inframette l' oblisione e divide le proprigioni, le quali lui senza gran proliisità non può nominare; e non potendole nominare, esso non può comporne l' armonica proportioinalità, la quale è composta di dinie proportioini. e per questo un medesimo tempo, nel quale s' inchincà la speculazione à' una bellezza dipinta, non può dare una bellezza descritta." Cf. Par. AXII, 24; AXVII, 25.

22

Omitted: "L' occhio, dal quale la bellezza dell' universo è specchiata delli contemplanti, è di tanta eccellantia, che chi consente alla sua perizia, si prua della rappresen- tazione di tutte l' opere della natura, per la veuta delle
quali l' anima sta contenta nelle humane carceri mediante gli occhi, per li quali essa anima si rappresenta tutte le marie cose di natura; ma chi li perde, lascia essa anima in una oscura prigione," Cf. Par. IX, 14, ff.

25

26

Omitted: "Adonque laudiamo quello, che co' le parolle satisfa all' audito, e quel, che co' la pittura satisfa al contento del uedere, ma tanto meno quel delle parole, quanto elle sono accidentali e create da minor autore, che l' opere di natura, di che 'l pittore è imitatore, la qualenatur è terminante ad dentro alle figure delle lor superfitie." Cf. Par. XV, 11; XXI, 21.

27

Omitted: "non è si insensato giudizio, che se gli è proposto, qual è più da eleggere, o' stare in perpetue tenebre, o' uoler perdere l' udito, che subito non dia uoler più tosto perdere l' udito insieme co' l' odorato, prima che restar cieco, perchè, chi perde il uedere, perde la bellezza del mondo con tutte le forme delle cose create." Cf. Par. XII, 8.

28

Omitted: "perch'è chi perde il uedere, perde la veduta e bellezza dell' universo. --- or, non uedi tu, che l' occhio abbraccia la bellezza di tutto il mondo? --- Questo è finestra dell' humano corpo, per la quale l' anima specula e fruisce la bellezza del mondo, --- ei moue li homini dal' oriente all' occidente." Cf. Par. IX, 14; X, 29; XII, 11.

29

Omitted: "ma la pittura eccelle e signoreggia la musica, perché essa non more immediate dopo la sua creatione, come fa la sventurata musica, anzi resta in essere, --- tu (la pittura) riservi in vita la caduche bellezze de' mortali, le quali hanno più permanetia, che le opere di natura le quali al continuo sono variate dal tempo, che le coduce alla debita vecchiezza. e tale scientia ha tale proportione con la divina natura, quale hanno le sue opere con le opere di essa natura, e per questo è adorata." Cf. Par. XXXIII, 20; XXXII, 29; IX, 3.

30

31

Omitted: "e se tu dicesi la musica essere composta di di proportione, ho io con questa medesima seguito la pittura, come me vedrai." Cf. Par. XXXII, 16.

31a

Omitted: "questa (la scoltura) anchora non è imitatrice de' colori, per li quali il pittore si affatica a trovare, che le ombre sieno compagne de' lumi." Cf. Par. XXXIV, 29; XXXVI, 10.

31b
Omitted: "Se tu dirai le scientie non meccaniche sono le mentali, io dirò che la pittura è mentale." Cf. Par. VII, 19 ff.

Omitted: "ma s' esso poeta toglie in prestito l' aiuto delle altre scientie, potrà compiere alla fere come gli altri mercanti portatori di diverse cose fatte da più inventori, e fa questo il poeta, quando si impresta l' altrui scientia, come dell' oratore, filosofo, astrologo, cosmografo e simili, le quali scientie sono in tutto separate dal poeta." Cf. Par. XXV, 1 ff.

Omitted: "dice lo scultore, che, se lui leva di soperchio, che non può aggiungere, come il pittore. al quale si risponde: se la sua arte era perfetta, egli avrebbe sollevato mediante la notitia delle misure quel, che bastava, e non di soperchio, il quale levamento nasce dalla sua ignorantia, la quale gli fa levare più o meno, che non debba." Cf. Par. ALV, 16.

Omitted: "non possono (li scultore) figurare li carpi trasparenti, n o n possono fi g u r a r e i luminosi. -- ciò ch' ella già, è che la è più resistente al tempo (i.e., la scultura) --- potrebbe lo scultore, che, dove fa un errore, non essergli facile il riconciliarlo. --- Nis una comparazione è dello ingegno et artificio e discorso della pittura a quello della scultura, che non s' impaccia della prospettiva causata dalla virtù della materia e non dall' artefice. --- rispondesi allo scultura.che dice, che la sua scientia è più permanente che la pittura, (che tal permanità ---)." Cf. Par. XXVIII, 19; XLV, 10, 16; XXXIV, 22; XLIV, 9.

This section is also found in an original manuscript of Leonardo, 2038 Bib.Nat., 25v. Richter (op.cit.) gives it, #655.
Omitted: "Lo scultore ha la sua arte di maggior fatica corporale che il pittore, cioè, meccanica e di minor fatica mentale. Lo scultore solo ricerca i lineamenti, che circondano la materia scultura, e il pittore ricerca le medesimi lineamenti e oltre a quelli ricerca ombra e lume, colore e scorto, delle quali cose la natura n' aiuta di continuo lo scultore, cioè con ombra e lume e prospettiva, le quali parti bisogna che il pittore se le acquisti per forza d' ingegno e si converta in essa natura, e lo scultore le trova di continuo fatte." Cf. Par. XXXI, 21; XII, 13; XXXIV, 22.

Omitted: "e tale arte abbraccia e restringe in se tutte le case visibili, il che far non può la povertà della scultura, cioè: li colori di tutte le cose e loro diminuzioni; questa figura le cose trasparenti e lo scultore tu mostrerà le naturali senza suo artefizio." Cf. Par. XXXV, 7; XXXVIII, 26 ff.


Omitted: "La pittura è di maggior discorso mentale, che la scultura è di maggiore artificio, conciosiachè la scultura non è altro, che quel, ch' ella pare, --- e l' artificio è condotto da due operatori, cioè dalla natura e dall' homo, ma molto e maggiore quello della natura conciosiachè s' ella non soccorresse tale opera con ombre più o meno oscure e con li lumi più o meno chiari, tale operazione sarebbe tutta di un colore chiaro e scuro, a similitudine di una superfitie piana. --- dice lo scultore, che farà di basso rilevo o che mostrerà per via di prospettiva quel, che non è in atto." Cf. Par. XXXVI, 8; 17 ff; XXXVII, 14; XX, 26.

Omitted: "dice lo scultore, che s' esso leva più marmo, che non debbe, che non può ricorrergere il suo errore, come fa il pittore, al quale si risponde, che chi leva più, che non debbe, che non è maestro. --- il quale ajuto (naturale) è privato d' inganno; e questo è il chiaro scuro, che i pittores dimandano lume et ombra, li quali il pittore con grandissima speculatione da se generatoli con le medesima quantità e qualità e proporzioni ajutandosi, che la natura senza ingegno dello scultore ajuta la scultura, a la medesima natura ajuta tale artefice con le debite diminuzioni, colle quali la prospettiva per se produce naturalmente senza discorso dello scultore; la qual scientia al pittore fa bisigno che col suo ingegno si l' acquisti. dirà lo scultore fare opere più eterne, che il pittore. qui si risponde essere virtù della materia scultura, e non dello scultore, che la scolpisce, e se 'l pittore dipinge in terra cotta co' vetri, essa sarà più eterna, che la scultura." Cf. Par. XLIV, 16; XXI, 9; XXXIV, 22;
44 -This whole section is omitted: "Se la scoltura avrà il lume di sotto, parrà cosa mostruosa e strana; questo non accade alla pittura, che tutte le parti porta con seco."
Cf. Par. XXXV, 20.

45 ------------------------------------------ XXXVI, XXXVII, XLV, XLVI
This section is contained also in the original manuscript of Leonardo, 2038 Bib. Nat. 24v. Richter gives it in 656 (op. cit).
Omitted: "la seconda cosa, che l'artiere con gran discorso bisogna che con sottile investigazione ponga le vere qualità e quantità dell'ombra e lumi. qui la natura per se le mette nelle opere dello scultore. --- Qui la scoltura è aiutata dalla natura in questo caso e fa senza invenzione dello scultore. --- Adonque quella pittura fatta in rame, che si può, com'è detto della pittura, levare e porre, - a par al bronzo, che quando faceui quella di cera, si poteua anche lei levare e porre,-" Cf. Par. XXXVI, § 2; XLVI, 19.

46 ----------------------------------------------- XXI, XXXI
Omitted: "et quella proportione che'è da' fatti alle parole, tal'è dalla pittura ad essa poesia, perché i fatti sono subbietto dell'occhio, et le parole subbietto dell'orecchio, et così li sensi hano la medesima proportione infra loro, quale hano li loro obbieti infra se medesimi, et per questo giudico la pittura essere superiore alla poesia."
Cf. Par. XXI, 7.

(In the references that follow to passages in Leonardo's original manuscripts R- refers to the section number in Richter (op. cit.), and C.A.- refers to the folio number of the Codex Atlanticus.)

R.22 ------------------------------------------ IX
R.61 ------------------------------------------ III
R.63 ------------------------------------------ III
R.658 ------------------------------------------ XXV
R.659 ------------------------------------------ XXIII
C.A.119v ------------------------------------------ XII
C.A.250r ------------------------------------------ XI
C.A.305r ------------------------------------------ XXXVI
In the translation of the Paragon I have used principally the Italian text of the Vatican Codex as published by Ludwig in volume XV of Quellenschriften für Kunstgeschichte. For passages here that are found also in the original manuscripts of Leonardo, and for other passages that I have interpolated, I have used the Paris manuscripts, the Codex Atlanticus, and Richter's publication (The Literary Works of Leonardo da Vinci, Italian and English) of sections from Leonardo's original manuscripts.

Ludwig's work being recognized as the standard publication of the Vatican Codex, I have indicated the passages in which my translation differs essentially from his. In general, my translation is less free and more literal than Ludwig's.

(Explanation of the signs used in the translation, that is, in Part I:
Lud.- indicates the original numbering of the passages of the Vatican Codex as published by Ludwig.
R.- indicates the numbers of passages from original manuscripts in Richter's publication.
C.A.- indicates the folio numbers of passages from the Codex Atlanticus not contained in Richter's publication. (See the preceding pages for passages in Ludwig's publication that are contained also in the original manuscripts of Leonardo).
/ indicates that the source of the following is a new passage.
- placed below the line, indicates a transposition or omission in the passage. (All omissions are given in the pages immediately preceding).}
Part I

The Paragon

A. Painting as a Science

Lud. 1. That mental activity is called science which is based on its own fundamental principles, outside of which nothing that is a part of this science can be found in nature. So it is, for example, in continuous quantity, that is, the science of geometry. This, commencing with the surface of bodies, is found to have its origin in the line, limit of the surface. And we are not satisfied with this, because we know that the line has its termination in the point, and the point is that than which nothing can be smaller. Therefore, the paint is the first principle of geometry, and nothing else can exist, either in nature or in the human mind, which can originate the point.

For if you say that in the contact made on a surface by the very point of a pencil the point is created, it is not true; but we say such a contact is a surface around its own center, and in the center is the position of the point.

This point is not of the material of the surface. Neither it nor all the potential points of the universe, even if they were united, granted that they could unite, would compose any part of a surface. Imagine given a whole composed of a thousand points; if one divides off any part of this quantity, one can say perfectly well that such part is equal to the whole. This is demonstrated with zero, or nothing, that is, the tenth figure of arithmetic, for which one writes an 0, in itself nothing, but which placed after a unit makes ten. And if you place two zeros after
this unit, it will mean a hundred; and thus it will
increase indefinitely, always ten times the number to
which it is joined. But it in itself has no value other
than nothing; and all the nothings in the universe are in
substance and value equal to a single nothing.

No human investigation can be called true science
if it does not proceed by mathematical demonstrations. And
if you say that sciences which begin and end in the mind
have truth, this is not conceded, but is denied for many
reasons, principally, because in such speculations
(discorsi mentali) experiment, without which nothing gives
1
certainty, has no part.

Lud.3.

The beginning of the science of painting is the
point, the second element is the line, the third the
surface, the fourth the body, which is clothed with these
surfaces. This last applies only to that which is feigned,
that is, the body that is represented, because, as a
matter of fact, painting does not extend further than the
surface, by which is represented the figure of the body
Lud.4. of every visible thing. The plane surface has its whole

image everywhere in the other plane surface that stands

1. The part here dealing with the importance of experiment is
essentially included in 33 (see below, p. 7), and there it is
elaborated. But I have not omitted it here because its juxta-
position with the preceding emphasis of the necessity of
mathematical procedure is illuminating (see below, p. 7).
2. "per la quale si fingie il corpo figura di qualunque cosa
evidente." Ludwig has: "bei und vermag deren der Körper
dargestellt wird, als Figur jeglicher sichtbaren Sache." For Leonardo's "figura" our word "figure" is hardly adequate.
Leonardo means the complete contour of the body, not in
the sense of a contour line, but rather, surface.
opposite it. Proof: Let \( r s \) be the first plane surface and \( o q \) the second plane surface placed opposite it. I say that this first surface \( r s \) is all in the surface \( o q \) and all in \( p \), because \( r s \) is the base of the angle \( o \) and of the angle \( p \) and thus of infinite angles made in \( o q \). Every body in light and shade fills the surrounding air with infinite images of itself, each conveying the quality, color and figure, of the body which produces it, and these by means of infinite pyramids diffused through the air represent this body throughout space and on every side. The farther they are from the object which produces them, the more acute they become, and, although in this distribution they intersect and cross, they never mingle together, but pass through all the surrounding air, independently converging, spreading, and diffused. Each pyramid in itself includes in each minutest part the whole form of the body causing it. This is shown by the images of the various bodies that are reproduced in a single perforation through which with intersecting lines, which cause inverted pyramids, they produce the things upside down on the first dark plane that they strike.

The science of painting is concerned with all the colors of the surfaces, the figures of the bodies clothed by these, their nearness and remoteness with respective degrees of diminution according to the degrees of distance, because the thing that is removed from the eye loses as much in size and color as it increases in remoteness.
therefore, painting is philosophy, because philosophy

treats of increasing and decreasing motion, which is found

in the above mentioned case, /and this science is the

mother of perspective, that is, optics (linee visuali).

Perspective is divided into three parts. Of these
the first treats only the outlines of bodies; the second
the diminution of colors at the different distances; the
third the loss of distinctness of bodies at various

distances. The first, however, which is concerned with the

outlines and contours of bodies is called drawing; that is,

the figuration of any body. From this arises another

science, /the second principle of painting, by which the

body is represented; /it comprises light and shade, or, if

you wish, chiaroscuro, a science that is of great importance.

Painting has to do with surfaces, colors, and

figures of everything created by nature, and philosophy

penetrates within the same bodies, considering their

peculiar qualities. But it is not, as the painter, satisfied

with that truth which embraces in itself the first verity

of such bodies, because the eye is deceived less than

the understanding.

Imitable sciences are of such sort that with them
the pupil equals the author, and his production does
the same. They are useful to the imitator but are not of
such excellence as those that cannot, like material things,
be left as an inheritance.

Among the latter painting takes the first place.

To those to whom nature does not give the talent painting
cannot be taught, as can mathematics, of which the pupil
takes in as much as the master reads to him. One does not copy it as one does writings, so that the copy is worth as much as the original. It cannot be cast like sculpture of which the impression is just like the original as far as the effect of the work goes. It does not have infinite children as do printed books. It alone remains noble in itself; it alone honors its author and remains precious and unique. And such rarity makes it more valuable than those works that are published everywhere.

Do we not see the greatest kings of the Orient go about veiled and covered, believing that they diminish their fame by publishing and divulging their presence? And does not one see paintings representing holy deities continually kept covered with veils of greatest price?

And at the unveiling first there is great ecclesiastical solemnity with various songs and diverse music. At the moment they are unveiled the great multitude of people gathered there immediately cast themselves on the ground, adoring and praying the one whom the picture represents for the gain of lost health and for eternal salvation just as if that deity were present in living form.

This does not happen in any other science or other work of man. And if you say this, not the power of the painter but the peculiar virtue of the thing imitated, it will be answered that in such a case the mind of men could be satisfied if they staid abed and did not go into difficult and perilous places in pilgrimages, as we continually see done. But since such pilgrimages continue to be made, who causes them unnecessarily? Certainly you
will confess that it is such an image, which is able, as all the scriptures are not, to represent in image and effect such a deity. Therefore, it appears that this deity loves such painting and loves him who loves and reveres it (the painting) and delights to be adored more in that than in any other form representing it and through that it gives grace and gifts of health, according to the belief of those who gather there.

Lud. 33. It is said that that knowledge is mechanical which is gained from experience, and that is scientific which begins and ends in the mind, and that is semi-mechanical which begins from science and ends in manual work. But it seems to me that those sciences are vain and full of error which are not born from experiment, mother of every certainty, and which do not end in observed experiment, that is, that their beginning or middle, or end is not grasped by one of the five senses. If we doubt the certainty of anything that passes through the senses, how much more ought we to doubt things contrary to these senses, as, for example, the being of God and of the soul, concerning which there is always dispute and contention. Indeed it happens that clamor is always substituted where reason is lacking. This does not happen in matters that are certain. Therefore, we say that where there is clamor, there is not true science, because truth has a single conclusion. When this is known, the strife remains eternally settled. And if this strife arises again, the science is deceitful and confused and not a reborn certainty.

1. "Iddea"—Ludwig has: "reingeistiges Ideal," and "Idealwesen" for the same word in the following sentence.
But the true sciences are those that experiment
has made to penetrate through the senses and make silent
the tongue of disputants. They do not feed their investi­
gators on dreams but always from the first true and known
principles proceed successively and with true sequence
to the end. This is demonstrated in the principal branches
of mathematics, that is, number and measure, called
arithmetic and geometry, which treat with the greatest
verity discrete and continuous qualities. Here it is not
argued that two times three make more or less than six,
nor that the angles of a triangle are equal to less than
two right angles, but every argument remains destroyed
in eternal silence, and in peace the sciences are enjoyed
by their devotees. This is impossible with false mental
sciences. /Painting, as well as music and geometry, considers
the proportions of continuous quantity, and like arithmetic,
those of the discontinuous. It considers all the continuous
quantity and the quality of the proportions of lights and
shades and distances in its perspective. /And if you say
that such true and experimental sciences are mechanical,
because they can only be completed manually, I say the
same of all the arts that pass through the hands of writers.
They are a species of drawing, which is a member of
painting. And astrology and the other sciences pass
through manual operations, but first are mental, as is
painting, which is first in the mind of its inventor and
cannot come to perfection without the manual work.

1. "li primi veri e noti principj"- Ludwig has: "seinen ersten,
 wahrhaftigen und wahrgenommenen, wie wohlbekannten Grund­
anfängen."
Giving the scientific and true beginnings of painting - we place first the shading body and the primitive and derived shades; and the light, that is, darkness, light, and color; and the body, figure, situation, remoteness, nearness, movement, and rest, which are only comprehended by the mind without manual work. And this is the science of painting, which abides in the minds of its scientists. From this arises then the operation, much more worthy than the aforesaid contemplation or science.

Lud. 34. Because writers have not had knowledge of the science of painting, they have not been able to describe the degrees and parts of it. And it does not show itself with its purpose in words. It has remained because of ignorance behind other sciences, not lacking, however, because of this in its divinity. And truly it is not without reason that they have not ennobled it, for it ennobles itself without the aid of the tongues of others, just as do the excellent works of nature. If painters have not described it and placed it in science, it is not the fault of the painting, and it is not for this reason less noble, since few painters make a profession of letters, because their life does not suffice to learn that. Do we have to say that the virtues of herbs, stones, and plants do not exist because men have not known them? Certainly not. But we say the herb remains noble in itself without the aid of human tongues or letters.

Lud. 12. If you depreciate painting, which is the only imitator of all the visible things of nature, certainly you will depreciate an ingenious invention, that with
philosophical and subtle speculation considers all the qualities of forms: seas, plains, plants, animals, herbs, and flowers, that are surrounded by shade and light. Truly, this is a science and the legitimate daughter of nature, because painting is born of nature; or to speak more correctly, we shall call her the granddaughter of nature; for all visible things are born from nature, and from these things painting is born. Therefore, we justly call her granddaughter of nature and related to God. And we as to our art can be called grandsons of God. Whoever censures painting censures nature; therefore, such a censurer lacks sense.

B. Praise of the Eye

Lud.19. The eye, which is called the window of the soul, is the principal way by which the judgment can most fully
Lud.23. and richly consider the infinite works of nature. It is a true medium between object and sensitive medium, which immediately reports with the greatest verity the true surfaces and outlines of that which presents itself before it. Here forms, here colors, here the appearances of all
Lud.28. parts of the universe are concentrated to a point. With the eye the soul is contented in its human prison, and
Lud.24. without it the prison is a torment, where is lost every hope of again seeing the sun, light of all the world. For he who loses sight is like one shut up for life in a sepulcher, in which he moves and lives,
Lud.15a. sepulcher, in which he moves and lives, or like one who

1. "perchè la pittura è partàrita d'essa natura" - Ludwig omits this clause.
2. "impressiva" - Ludwig has: "Eindrucksvermögen."
is chased from the world, because he does not see it any
more, nor anything at all. And such a life is the sister
of death. For this reason human skill has discovered
fire, by means of which the eye reacquires that which
darkness at first took away. How many are those who hate
the darkness of nights, which are yet of such short
duration! O, what would these do if this darkness were
companion of their life?

If you say that sight hinders attentive and subtle
mental cognition, with which one penetrates into the divine
sciences, and such a hindrance should lead a philosopher to
deprive himself of sight, to this it is responded that the
eye as lord of the senses does its duty in giving hindrance
to confused and lying - not sciences - but talking, in
which people always dispute with loud uproar and gesticu-
lating hands. The hearing ought to do the same, for it
gets more offended by this, because it would wish harmony
in which all the opinions mingle. And if that philosopher
should put out his eyes to take away the hindrance to his
discourses, you would consider that such an act was the
equal of his brain and discourses, for all was foolishness.
Now could he not close his eyes when he entered into such
a frenzy and keep them closed until the frenzy had burned
itself out? But mad was the man and mad his discourses and
most foolish his putting out his eyes.

The eye governs astronomy; it makes cosmography;
it has invented navigation; it counsels and directs all
human arts; it has ornamented nature with tillage and
delightful gardens; it moves man to different parts of
the world; it is the prince of mathematics, the sciences of which are most certain. It has measured the height and size of the stars; it has found the elements and their situations; it has predicted future things by the course of the stars. It has created architecture and perspective; it has created divine painting. And it surpasses nature in that the simple natural things are finite, while the works which the eye commands to the hands are infinite, as the painter shows in the invention of infinite forms of animals and herbs, plants, and places. But why is it necessary that I go into such a lofty and long discourse? What does it not do? O, most excellent, above all things created by God! What praises can express thy nobility? What people, what languages, can fully describe thy real activity?

Lud. 19. Second to this comes the ear, which ennobles itself by hearing the things recounted that the eye has seen. If you, historian, or poet, or mathematician, even, had not seen things with your eyes, you could hardly report them in writing.

C.A. 250r. As much quicker as the eye is in its practice than the ear, so much more does it reserve the similitude of things in its impression.

Lud. 11. The eye within reasonable distances and mediums is less deceived in its office than any other sense, because it sees only by straight lines which compose a pyramid that has its base at the object and reaches to the eye. But the ear is greatly deceived in locations and distances of its objects, because images do not come to it
by direct lines, but by curved and reflected, and many are the times that the remote seem nearer than the near, because of the transmissions of such images, though the voice of the echo is only thrown back to this sense by straight lines. The smell is less certain of the location whence an odor is caused; but taste and touch, which touch the object, have knowledge just from contact.

Lud. 24. Certainly there is no one who would not rather lose the senses of hearing, smell, and touch than sight, although the loss of hearing means the loss of all sciences that have their end in words. And he does this only not to lose the beauty of the world, which consists of the surfaces of bodies, accidental as well as natural, which are reflected in the human eye. And the deaf only loses the sound made by the motion of the vibrating air, which is the least thing in the world.

C.A.119v. Because the eye is the window of the soul, the latter is always in fear of losing it; so that if anything moves in front that gives sudden fright to a man, he will not cover with his hand his heart, fountain of life, nor his head, residence of the lord of the senses, nor the organ of hearing, nor that of smell, nor that of taste. Rather, the frightened sense - not being satisfied with closing the eyes, with their lids shut tightly - suddenly turns him about in the opposite direction; and still not being secure, he puts one hand there (over the

1. Accidental (accidentali) means, with Leonardo, changeable qualities of the surface, as light and shade; natural (naturali) means the unchangeable, as the contour. (See Ludwig: Das Malerbuch —, XVII, p.194.)
frightened sense - eyes) and extends the other, guarding against the suspected thing.

Lud.16. Living beings receive greater harm through the loss of sight than of hearing for numerous reasons. First, because by means of sight is found the food whence they have to be nourished and which is necessary for all animals. And second, because through sight is comprehended the beauty of created things, especially of things which induce to love. Of these one born blind cannot choose by means of hearing, because he never would know what the beauty of anything was. His hearing is left to him, and through it he only understands men's voices and talking, in which is the name of everything that is given a name. Without the knowledge of these names one might live happily, as is seen in the case of those born deaf, that is, mutes, (who transmit their ideas) by means of sign language, with which most mutes content themselves.

C. Painting and Poetry

Lud.20. Painting is a poetry that is seen and not heard, and poetry is a painting that is heard and not seen. Or painting is mute poetry, and poetry is blind painting, and both imitate nature as far as possible for them.

Lud.20. Therefore, these two poetries, or if you will, two paintings, have exchanged the senses through which they properly penetrate to the intellect. For if both are painting, they must pass to the judgment through the more noble sense, the eye; and if both are poetry, they have to pass through the less noble sense, the hearing.
Therefore, we give painting to the judgment of one born deaf, and poetry to the judgment of one born blind. And if painting is made with movements appropriate to the mental states of the figures that take part in any affair, without doubt the born-deaf will understand the actions and intentions of the characters; but the born-blind will never understand what the poet shows that does honor to his poetry, since one of the noble parts of it is to represent the movements and components of narratives, ornamented and delightful regions with transparent waters through which are seen the verdant bottoms of their courses, waves that over the meadows and fine pebbles play with blades of grass that are mixed with them together with hurrying fish, and like fancies, which one could as well tell to a rock as to one born blind. For he has never seen anything that goes to make up the beauty of the world, that is, light, darkness, color, figure, place, remoteness, nearness, movement, and rest, which are the ten ornaments of nature.

But the deaf, having lost the less noble sense, even if he has at the same time lost speech, because he has never heard anyone speak and never could learn any language, still will understand well every characteristic expressed by the human body, indeed better than one who talks and hears. And likewise he will understand the works of painters and what is represented in them and what the figures signify.

Lud. 18. If you say painting is in itself a mute poetry when there is no one present who expresses for it what it
represents, pray, do you not see that the composition of the poet finds itself in a worse condition, because even if it has someone who speaks for it, one sees nothing of what is mentioned, as one sees in the case of the one who speaks for paintings. These paintings, if the actions are well adapted to the mental states, will be understood as if they were speaking.

Lud. 28. Since we have concluded that poetry is in the highest degree comprehensible to the blind and that painting is the same to the deaf, we say painting is valued as much more than poetry as painting serves a better and more noble sense than poetry, which nobility is found to be three times that of each of the other three senses; because one would lose hearing, smell, and touch much rather than the sense of sight.

Lud. 23. The sense of hearing, again, is less worthy than that of sight, because as much as is born of it so much dies, and it is as rapid in dying as in birth. This cannot happen with the sense of sight, because if you exhibit to the eye a human beauty composed of a harmony of beautiful members, these beauties are not so transient nor so quickly dissolved as music. On the contrary, the beauty has long permanence and allows you to look and study and is not born again, as music is, in many recitals, nor does it cause fatigue, rather it enchants you and makes all the senses with the eye wish to possess it. It seems that they wish to strive with the eye in rivalry. It seems that the mouth wants it bodily for itself; the ear takes pleasure in hearing its beauties; the sense of touch
wishes to penetrate through all its pores; the nose even
would receive the air that is continually exhaled from it.
But time destroys in a few years the beauty of such
harmony; and this does not occur with a painter's imitated
beauty. For time long preserves it, and the eye, for its
part, takes true pleasure in such a painted beauty as it
does in the living beauty. Touch, which acts as an elder
brother to the sense of sight at the same time is lacking.
Since it will probably have accomplished its purpose, it
will not hinder the reason from considering the divine
beauty. And in this case the painting imitated from that
beauty makes up for it in large measure, a substitution
that the description of the poet cannot make.

You have placed painting among the mechanical
arts. Certainly if painters were as active in praising
their works with writings as you, I believe it would not
have such a bad name. If you call it mechanical because
it is in the first instance manual, because the hands
represent that which is in the mind, you writers draw with
your pen manually that which is found in your imagination.
And if you say it is mechanical because it is done for a
price, who falls into this error, if it can be called an
error, more than you? If you read for instruction, do you
not go to those who reward you best? Do you do anything
without some pay? But I do not say this to find fault
with such practice, for every effort expects reward.

If you say poetry is more eternal, I shall answer
that the works of a tinker are more eternal, which time
preserves longer than your works or ours. Nevertheless
he (the tinker) has little fancy; and painting can, painting on copper with glass colors, make itself much more eternal.

All sciences that end in words have as quick death as birth, except their manual part, the writing, which is mechanical.

When, on the birthday of King Matthias, a poet brought a work composed in praise of the day when the King was born to the good of the world, and a painter presented to him a painting of his beloved, suddenly the king closed the book of the poet and turned to the painting and to that confined his gaze with great admiration.

Then the poet greatly vexed said: "O, King, read, read, you will perceive a thing of greater substance than a mute painting."

Then the king, feeling himself reprimanded for looking at a mute thing, said: "O, poet, be silent, you do not know what you say. This painting serves a better sense than your work, which is for the blind. Give me something that I can see and touch and not merely hear, and do not blame my choice because I have put your work under my elbow and hold this of the painter with both hands, giving my eyes to it; because the hands of themselves have taken to the service of a more worthy sense than is hearing.

"Do you not know that our soul is composed of harmony, and that harmony is only generated in an instant when the relation of the objects is seen or heard? Do you not see that in your science harmony is not created

1. Evidently, Matthias Corvinus of Hungary (1440-'90). Seidlitz (op. cit., v.I, p.112) suggests Leonardo as the artist whom L. il Moro commissioned in 1485 to paint a Madonna for King Matthias.
in an instant, rather that one part is born from another successively, and the succeeding one is not born unless the antecedent dies? for this reason I judge your invention to be inferior to that of the painter, merely because from it there is not formed a harmonious proportion. It does not content the mind of the auditor or observer as does the harmony of the very beautiful members which compose the divine loveliness of this beauty that is before me. These members all joined together in the same time give me so much pleasure with their divine proportions that I think there is nothing else on earth made by man that gives him greater power."

Lud.21. from painting, because it serves the eye, results a harmonious proportion, just as from many voices joined together at the same time there results a harmonious relationship that satisfies the sense of hearing so much that the auditors remain in dumb admiration, as if half dead. But the proportionate beauty of an angelic face placed in a painting will do far more. From its proportion there results a harmonious accord, which serves the eye

Lud.32. in one moment as music serves the ear. This is true of painting in general as in particular; in general, as concerns the composition; in particular, as concerns the components of which this whole is made up.

As far as the representation of corporeal things is concerned, there is such a difference between poet and painter as between dismembered and united bodies; because the poet in describing the beauty or ugliness of any body shows it to you member by member and at different times,
and the painter makes you see it all at one time. He who wishes to present to the ear what ought to be presented to the eye, sins against nature. Let the office of music enter there and do not put there the science of painting, true imitator of the natural figures of all things. The poet cannot give with words the true form of the members that compose a whole, as the painter, who places it before you with as much truth as is possible in nature. And the same happens to the poet as to the musician who sings alone a song composed for four singers and sings first the treble, then the tenor, then follows the contralto, and then the base. From this there does not result the pleasure of the harmonious relationship that is composed in harmonic times. This poet acts like a fine face that shows you itself member by member. From such exhibitions forgetfulness would not allow any harmony to be formed, because the eye does not take them all in at the same time with its visual power, and you would never be satisfied with the beauty of the face, which only consists in the divine relationship of the aforesaid members composed together, that only in one time form this divine harmony of the union of members, that often takes away the liberty of the one who sees them.

Painting is presented immediately to you with that appearance for the sake of which its artist produced it, and gives a pleasure to the highest sense such as anything created by nature can give. And in this regard, the poet, who transmits the same things to the common sense by way of the hearing, minor sense, which carries to the
sensitive medium more confusedly and with more tardiness representations of the things named than does the eye,

Lud.22. gives no more pleasure to the eye than if one should hear something told. But see what difference there is between hearing a thing told, that gives tardy pleasure to the eye, and seeing it with that suddenness with which natural things are seen. And besides, the things of the poet are read with long intervals of time. Often they are not understood and it is necessary to make comments on them, and very rarely do the commentators understand what the intention of the poet was. And frequently, through lack of time, the readers read only a small part of the work. But the work of the painter is immediately comprehended by its spectators.

Lud.2. There is such a contrast between imagery and reality as between shadow and the body that casts the shadow, and the same contrast obtains between poetry and painting, for poetry puts what it has to say in the imagery of letters and painting in reality outside the eye, and even greater contrast, because the shadow of a body at least enters through the eye to the common sense, but the imagination of such a body does not enter that sense, but is born there, in the inward eye. And it never gets outside except in so far as it goes to the memory, and there it stops and dies unless the thing imagined is of great excellence. The imagination does not see such perfection as the eye, for the eye receives the images or likenesses of the objects and gives them to the sensitive medium, and from this medium they go to the common
sense, and are judged there. Poetry is invented in the mind or imagination of the poet, who feigns the things of the painter, through which feignings he wishes to equal the painter, but really he is very far from it. 0, how different it is to imagine a splendor in the inward eye from seeing it in reality outside that darkness.

Lud. 46. In dissembling words poetry surpasses painting, Lud. 7. and in feigning deeds painting surpasses poetry. And painting represents to the sense with more truth and certainty the works of nature than words do, or than letters. But we call that science more admirable which represents the works of nature than that which represents the works of the worker, that is, the works of men, which words are, as poetry and the like, that pass over the

Lud. 14. the human tongue. For the works of nature are much more worthy than words, since the relation of the works of men to those of nature is that of man to God. You say that science is more noble as it deals with a more worthy subject, and for this reason value more a false fancy concerning the nature of God than a notion of a thing less worthy; we say that painting, which deals only in the works of God, is more worthy than poetry, which

Lud. 15. deals only in empty fruits of human works. The only true office of the poet is to present the words of people who talk together, and only these does he present to the sense of hearing in a natural way, because in themselves they are natural, created by the human voice, and in all other things he is surpassed by the painter. The variations which painting attains are incomparably more numerous
than those of words, for the painter makes innumerable things that words cannot name, because it has not terms appropriate to them. If the painter wishes to see beautiful things that enamor him, he is master to create them; if he will see monstrous things that terrify, or that are comical and laughable, or such as move him to pity, he is master and lord of them. And do you not see that if he wishes to feign animals, or devils in hell, with what abundance of invention he overflows. And if he wishes to create inhabited regions and deserts, places shady and cool in hot weather, he represents them, and likewise warm places in cold weather. If he wishes valleys, if he wishes from the lofty summits of mountains to see broad country, and if he wishes after these to see the horizon of the sea, he is lord of these. And if from low valleys he wishes to see lofty mountains, or from lofty mountains the low valleys and coasts, and in short, whatever is in the world in essence, presence, or imagination, he has first in his mind and then in his hands. And these things are of such excellence that at one time they cause a harmony in a single view, as the things themselves do.

The poet may say: "I will make a representation that will signify great things." The painter will do this very same thing, as Apelles did with his "Calumny." If the poet is as free as the painter in inventiveness, his inventions are not so satisfactory to men as paintings; because, if poetry with words takes in figures, forms, actions, and regions, the painter exerts himself to counterfeit these forms with their own likenesses. But look,
which is nearer to man, his name or his image? The name of man varies in different places, and the form does not change except through death. If you have the results of demonstrations, we have the demonstrations of results.

Lud.26. The poet argues: "You say, O painter, that your art is adored, but do not impute that virtue to yourself, but to the thing of which the painting is the representative." Here the painter answers: "O you, poet, who also make yourself an imitator, why do you not represent things with your words so that your letters that make these words will be adored?" But nature has favored the painter more than the poet, and rightly the work of the favorite ought to be honored more than the work of the one who is not in favor.

R.659. Though you may be able to tell or write the exact description of forms, the painter can so depict them that they will appear alive, with the shadows and lights showing the expressions of the faces, which you cannot accomplish with the pen. And if you, poet, wish to describe the works of nature with your unmixed profession, simulating various regions and forms of various things, you are surpassed by the painter with his infinite supply of power. But if you would clothe yourself with other sciences separate from poetry, they are not yours, as, for example, astronomy, rhetoric, theology, philosophy, geometry, arithmetic, and the like. Then you are no longer poet, you transform yourself and are no longer what is being discussed here.

Lud.23. What moves you, O man, to abandon your home$ in
the city and leave parents and friends and go into
country places through mountains and valleys, if not the
natural beauty of the world, which, if you consider well,
pleases you only through the visual sense? And if the poet
in such a case wishes to call himself painter, why do you
not take descriptions by the poet of such places and stay
at home without feeling the excessive heat of the sun?
Would this not be more profitable and less tiring, because
it would let you be cool and quiet and out of danger of
illness? But the soul could not enjoy the service of the
eyes, windows of its dwelling place, and could not receive
the images of the high places, could not see the shade of
valleys marked by the play of winding rivers, could not
see the different kinds of flowers, which make a harmony
for the eye with their colors, and so all other things
that can present themselves to the eye. But if the painter
in the cold and rigid time of winter places before you
paintings of the same landscapes and others, in which
you have enjoyed yourself near some fountain, and you can
see yourself there again, lover with your beloved, in
meadows full of flowers, under the soft shade of green
trees, will you not receive other pleasures than you
would in hearing such effects described by the poet?

Here the poet replies and yields to the above
reasoning, but says that he surpasses the painter, because
he makes men talk and reason with various fabrications in
which he feigns things that do not exist, and that he
incites men to take up arms, and he describes the sky,
the stars, all nature, and also the arts, and anything.
to this it is answered that none of these things of which he talks is his peculiar profession, but that, if he will talk and argue, then certainly in this he is vanquished by the orator, and if he talks of astronomy, he has stolen from the astronomer, and of philosophy, the philosopher. And do you not see that if he wishes to go to nature he goes there by means of the knowledge achieved by others of the effects of nature, while the painter by himself without aid of sciences or other means goes immediately to the imitation of these works of nature. In fact, poetry has no position peculiar to itself, nor has other merit than a merchant who is collector of merchandise made by different artisans. He is an agent, who brings together different persons to conclude a bargain. And if you wish to discover the proper office of the poet, you will not find it to be other than a collector of things stolen from different sciences, with which he makes a false composite, or, if you wish to call it a more honest name, a feigned mixture. And in this free feigning, which is the most feeble part of painting, the poet is placed on a level with the painter. As soon as the poet ceases to represent in words what exists in nature, he ceases to be like the painter. For if the poet leaves such representations and describes the polished and persuasive words of him whom he wishes to represent speaking, he becomes an orator and is no longer a poet or a painter. And if he speaks of the heavens, he becomes an astronomer, and a philosopher and theologian when discoursing of the works of nature and of God. But if he confines himself to
the representation of specific objects, he will vie with
the painter only if by his words he can satisfy the eye
as the painter does.

Lud. 7. That science is more useful whose fruit is more
communicable, and *vice versa*, that is less useful whose fruit
is less communicable. The message of painting is communic­
able to all generations of the whole world, because it
depends on the sense of sight, and nothing passes by the
ear to the common sense with the same clearness that it
passes by the sight. Therefore, this does not need
interpreters of various languages as writings do, but
immediately satisfies human kind just as things produced
by nature do, and not only the human species, but also
other animals. This is illustrated by a picture, represent­
ing the father of a family being carressed by little
children still in their swaddling clothes, and even the
dog and cat of the same house, so that it was a remarkable
thing to look at such a spectacle. Once I saw a painting
that deceived a dog by the similarity to its master; before
it this dog made great capers. And similarly, I have seen
dogs bay and want to bite painted dogs, and a monkey act
extremely foolishly toward a painted monkey. I have seen
swallows fly and try to perch on the painted irons that
projected from the windows of houses - all achievements
of a most remarkable painter.

Lud. 14. What poet can place before you in words, O lover,
the true image of your ideal with such verity as the
painter does? Who will show you the sites of the rivers,
woods, valleys, and fields, where are represented your
past pleasures, with more truth than the painter?

Lud. 25. The poet says that he describes a thing which
represents to us another flood of beautiful sentences. The
painter says he is free to do the same, and in this respect
he also is a poet. And if the poet says that he moves men
to love, which is the principal thing in all living beings,
the painter has power to do the same, so much more that
he puts the true image of the thing loved before the lover,
who often starts to kiss and talk to it. He would not do
this with the same beauty placed before him by the writer.
And the painter overcomes the wits of men to such a degree
that he induces them to love and to become enamored with
a painting that does not represent any living woman. Inde­
30ed I have made a painting that represented a divinity,
and the lover of it who bought it wished to take away
from it the representation of the deity in order to be
able to kiss it without timidity. But finally, his
conscience overcame his sighs and wantonness, and he was
forced to take it (the picture) from his house. Now go,
poet, describe a beauty without the representation of a
living thing and rouse men with that to such longings. If
you say, "I will describe for you inferno or paradise, and
Lud. 19. other delights or horrors," the painter surpasses you./ If
poetry frightens people with infernal fictions, painting,
25 putting the same things in reality, does the same. Set
the poet with the painter to represent a beauty, a ferocity,
a thing evil and ugly, a monstrosity; let him freely make
in his own way variations of form that the painter would
Lud. 25. not make better! For he puts before you things that
keeping silent speak of such delights, or frighten you, or move you to flee. For painting moves the senses more quickly than poetry. And if you say that with words you will move a crowd to weeping or laughing, I tell you that it is not you who influence; it is the orator, and it is a science that is not poetry. The painter will move to laughter but not to weeping, because this is a deeper emotion than laughter. A painter made a picture that caused whoever looked at it to yawn, and this happened everytime the eyes were turned toward the painting. Others have painted acts, lustful and so abandoned that they have incited the spectators to the same excesses. This poetry does not do. And if you will describe the form of any God, such a description will not cause veneration as does the painted image, because such painting will be made the object of continual gifts and prayers, and different generations will journey to it from various countries and by the eastern seas, and these will beg succor of the painting and not of the writing.

Certainly a trial must give the verdict to experience. Take a poet who describes the beauty of a woman to her lover, and take a painter who portrays her, you will see in which direction nature turns the enamored judge more. Put the name of God in writing in a place and put the figure opposite, you will see which is more revered. Or, I only ask that a good painter represent the fury of a battle and that the poet write about one, and that the two be put together in public. You will see where the onlookers remain, where they are more attentive,
where more praise is given, and which satisfies better. Certainly the painting, far more useful and beautiful, will please more. Will you, poet, represent a bloody battle? Does one stand with the air obscure and dark on account of the smoke and the terrible and deathly machines, mixed with the dense dust stirred up in the air, and the fearful flight of the unfortunate frightened by horrible death? In this case the painter surpasses you, because your pen would be worn out before you could describe in full what the painter represents for you immediately with his science. And your tongue would be hindered by thirst and your body by sleep and hunger before you could show with words what the painter shows you in an instant. In the picture nothing is lacking except the soul of the things represented, and of each body there is the whole of that side which can be shown in a single view. It would be long and tedious work for poetry to represent all the movements of the participants in such warfare, and the parts of their bodies, and their ornaments. The picture finished with great brevity and truth places you before these things, and to this exhibition nothing is lacking except the noise of the machines, and the yelling of the terrifying victors, and the crying and lamentation of the terrified, which the poet also cannot represent to the sense of hearing.

Lud.25. The poet says that his science is invention and measure, and this is the mere body of poetry, invention of material and measure in verses, and that he clothes them with all science. To this the painter responds that
he has the same obligations in the science of painting, that is, invention of material which he should reign, and invention of measure in the things painted, in order that they be not disproportionate. But he says too that it is not dependent upon those three sciences (astronomy, geometry, and arithmetic), rather that they are in large part dependent upon painting, for example, astronomy, because it is altogether lines of sight and pyramid sections, does nothing without perspective, daughter of painting, for the painter is the one who through the necessity of his art has originated perspective — that is, mathematical astronomy; I am not speaking of speculative fallacies, pardon me he who makes a living from stupid people. One cannot do anything without lines, within which are enclosed all the various figures of the bodies generated by nature, and without which the art of geometry is destitute. If geometry reduces every surface surrounded by lines to the figure of the square and every body to the figure of the cube, and arithmetic does the same with square and cube root, still these two sciences only treat of the facts of continuous and discontinuous quantities, but do not trouble themselves with quality, which is the beauty of the works of nature and the ornament of the world. The divine science of painting considers the works, human as well as divine, which are bounded by surfaces, that is, boundary lines of bodies. With these it directs the sculptor to the perfection of his statue. With its fundamental principle, that is, drawing, it
teaches the architect to make his edifice pleasing to the eye. It does the same service to the maker of various vases, to the gold-worker, weaver, and emboiderer. It has invented the letters with which different languages are expressed, it has given the characters to arithmetic, has taught the figure forms of geometry, has taught perspective workers, and astronomers, and mechanics, and engineers.

Lud. 19. If poetry deals with moral philosophy, painting deals with natural philosophy. If the former describes the actions of the mind, painting considers what the mind may effect by the motions of the body.

Lud. 27. With due lamentation painting grieves because it is excluded from the number of liberal arts, for it is a true daughter of nature and is made for a very worthy sense. Whence, it is unjust, u writers, that you have left it out of the number of said liberal arts, because it is not confined to the works of nature but extends to infinite things that nature never created. Since, however, those who practice it have not known how to speak for its rights, it has remained a long time without advocates, because it does not talk, but through itself it shows its nature, and it ends in deeds. And poetry ends in words, with which it praises itself in sprightly fashion.

D. Painting and Music

Lud. 29. Music must be called the sister, and smaller sister of painting, because it is the subject of hearing,
second sense to the eye, and composes harmony by the
joining of its proportionate parts expressed at the same
time. But these must be born and must die in one or more
harmonic times, which times include the relationship of
the members of which such harmony is composed, as the
circumferential line encloses the members that form human
beauty.

Lud.31. Although the things that are subject to the eye
touch each other successively, nevertheless, I shall
10 make my rule of twenty to twenty braccia, as the musician
has done with voices. These, although they are united
and joined together, yet have a few degrees of voice to
voice, called first, second, third, fourth, and fifth.
And thus from degree to degree he has given names to
15 the variety of height and lowness of the voices.

Lud.30. The musician says that his science is equal to
that of the painter, because it is a body with many
members, all the grace of which the spectator contemplates
in as many harmonic times as are the times in which it
is born and dies, and with these it gives pleasure to
the soul in the body of the contemplator. But the painter
responds that the body composed of human members does
not give its pleasure in harmonic times, in which the
beauty would have to change, giving form to another. But
25 it is permanent for many years and is of such excellence
that it preserves in life that harmony of proportionate
members, which nature with all its power could not

Lud.29. preserve, and shows to you as if alive that which in fact
Lud.30. is a single surface. O marvelous science! How many
paintings have preserved the image of a divine beauty whose natural model time or death have destroyed in a short time, and the work of the painter has remained more worthy than that of nature, his master. If you say music is made eternal by being written, we do the same here for painting with letters. And if you say that base men make use of it (painting), in the same way music is spoiled by those who do not understand it.

Lud.31b. If you, O musician, say that painting is mechanical because it is done by the exercise of the hands, also music is produced with the mouth, which is a human organ but not related to the sense of taste, as the hand is not related to the sense of touch. Yet less worthy are the words that it makes. And you, writer of science, do you not copy with your hand what is in your mind, as the painter does?

Lud.31b. That thing is of more worth which satisfies a better sense. Therefore, painting, which satisfies the sense of sight, is more noble than music, which satisfies hearing. That thing is more noble which has more duration. Therefore, music, consumed whilst it is born, is of less worth than painting, which with glazing becomes eternal. That thing which contains in itself greater universality and variety is said to be of more excellence. Therefore, painting must precede all work, because it contains all forms found in nature and those not there. It ought to be magnified and exalted more than music, which serves only the voice.

With painting images of Gods are made, before which
there is divine worship, that is ornamented with music, subservient to this (painting). With it is given a copy to lovers of the cause of their love; with it is preserved the beauty which time and nature make fugitive; with it are preserved the images of famous men.

Therefore, since you have put music among the liberal arts, either put this (painting) there, or take away that (music).

E. Conclusion concerning Poet, Painter, and Musician

The musician also (like the painter) makes in his harmonic time the sweet melody composed of his various voices. But the poet is deprived of the harmonious order, and although poetry, like music, enters through the sense of hearing to the seat of judgment, yet the poet cannot describe the harmony of the music, because he has not power to say different things at the same time. And for this reason, the poet remains, as far as the representation of corporeal things is concerned, much behind the painter, and as concerns things invisible, he remains behind the musician.

F. Painting and Sculpture

After painting comes sculpture, a very worthy art, but not effected with such excellence of wit, because in two principal and very difficult matters with which the painter proceeds in his work the sculptor is aided by nature, that is, in perspective, and shade, and light.
the sculptor cannot give variety by the various colors of things, and painting does not lack in any respect.

Lud.35. Sculpture is not a science but a very mechanical art, because it produces sweat and physical fatigue in the one who works in it. And such an artist needs to know only the simplest measurements of the members and the nature of the movements and positions. And thus sculpture ends in itself, showing itself to the eye as it is - a body in relief surrounded by air and clothed with dark and light surface, as are natural bodies - not giving of itself wonder to its contemplator, as does painting, which by the power of science shows in a plane surface the broadest country with the distant horizon.

Lud.38. Since I work no less in sculpture than in painting, and practice each in the same measure, it seems to me that I can with little prejudice judge as to which involves the greater ingenuity, difficulty, and perfection.

Lud.42. First, sculpture is dependent upon certain lights, upon those from above. It is worth nothing if it does have the light directed similarly to that where it has been fashioned. For if the light comes from below, the work will appear very much distorted, especially low relief, the recognition of which is almost destroyed for the judges opposite it. But painting carries throughout both light and shade with it. The sculptor in this regard is aided by the nature of the relief, which generates it (light and shade) by itself; and the
painter with his suitable art makes it in the place
C.A.305r. where nature would reasonably make it. The principal
artifice of the painter is that his painting appears
in relief; this is not true of the sculptor, because
Lud.45. in such a case he is aided by nature. The painting
appears loosened from the wall or the other plane and
deceives subtle judgments with that thing which is not
separated from the surface of the partition wall. But
the sculptor makes his work so that all appears as it
is, and this is the reason the painter needs to make
use of the knowledge of shades that they may agree
with the lights. Such science is not necessary for the
sculptor, because nature aids his work, as it does
all other bodily things, from which if the light is
taken, they are of uniform color, and restore the light
and they are of various colors, that is, light and shade.
Lud.43. But what can the sculptor do without natural
conditions continually helping him in all cases where
Lud.42. it is necessary and suitable? There is obtained the
aid of perspective, which with its foreshortening helps
to turn the muscular surface of the body to diverse
aspects, one covering another more or less. Here the
sculptor responds and says, "If I did not make such
muscles, perspective would not foreshorten them for me,"
to which we reply that if it were not for the
aid of chiaroscuro, you would not be able to make such
muscles, because you could not see them. The sculptor
says that he is the one who creates chiaroscuro by
his taking away of the sculptured material. It is repli-
ed that it is not he but nature makes the shade — not art—and that if he sculptured in the dark, he would see nothing, because there is no variety there. Nor in mists surrounding the sculptured material with equal clearness would there be seen anything except the contours of the sculptured object in the outlines of the mist. And I ask you, sculptor, why you do not carry out works in the country surrounded by uniform, general light of the air in that perfection that you do in a particular light that falls from above for the illumination of your work. If you create the shade at your good pleasure in taking away from the material, why do you not create it in the same way in the sculptured material in the general light? Certainly you deceive yourself, it is another master who makes these shades and lights, to whom you therefore as servant furnish the material, where he imprints these characters. So do not boast because of the work of others. For you are needed only the length and thickness of the members of any body and their proportions, and this is your art. The rest, which is all, is done by nature, greater master than you.

Lud. 45. Perspective is the most subtle investigation and invention of the mathematical studies, which by the power of lines makes that appear remote which is near,

Lud. 38. and that large which is small. The perspectives of sculptors do not appear at all true; those of the painter appear to extend hundreds of miles beyond the picture;

Lud. 40. aerial perspective shows a very great distance.
painter will show you true distances with variety of
color of the air interposed between the object and the
eye, mists through which the images of the objects
penetrate with difficulty, rains behind which appear
clouds, with mountains and valleys, clouds of dust in
and behind which the combatants who raise them are seen.
He will show you smoke, more or less dense, fish playing
between the surface of the water and its bed, the
polished sand with various colors on the washed gravel
of the bottom of the rivers, surrounded by growing herbs
at the surface of the water, the stars at different
heights above us, and other innumerable real things to
which sculpture does not attain./ Sculpture lacks the
beauty of colors, lacks the perspective of colors, and
the confusion of the contours of things remote from the
eye; it makes the contours of things remote, as those
near, distinct. It will not make the air interposed
between the remote object and the eye cover this object
more than the near object. It will not make lucid or
transparent bodies, as, for example, veiled figures,
which show the nude flesh under the veils placed over
them,/ nor reflex rays, nor shining bodies, as mirrors
and similar lustrous things, nor clouds, nor dark
weather, nor countless other things that are not mention-
ed in order not to tire._

Painting is of wonderful artifice, with all the
most subtle speculations of which sculpture is entirely
deprived because it has very little theory./ Sculpture
has little theory in comparison with painting because
the sculptor only takes off, and the painter always puts on. The sculptor always takes off from a single material, and the painter always puts on various materials. Painting is of greater mental theory and of greater artifice and wonder than sculpture, because necessity constrains the mind of the painter to change itself into the proper mind of nature, and he is interpreter between this nature and art, expounding with the latter the reasons of its (nature's) demonstrations, which are subject to its laws. He shows in what manner the resemblances of objects around the eye coincide with the true images in the pupil of the eye. Also between objects equal in size he shows which will appear larger to this eye, and between equal colors, which will appear more or less dark, or more or less light, and between things of equal lowness, which will appear more or less low, and of those that are placed in equal height, which will appear more or less high, and why equal objects placed at different distances will appear less prominent one than the other.

Lud. 36. Between painting and sculpture I find just this difference, that the sculptor carries on his work with greater physical fatigue than the painter, and the painter carries on his work with greater mental fatigue. This is proved to be so by the fact that the sculptor in doing his work wears away the marble or other superfluous stone, which exceeds the figure that is confined within it, by the strength of his arm in striking. This is a thoroughly mechanical exercise accompanied
often by much sweat compounded with dust and turned into mud. He has his face pasted and all powdered with marble dust, so that he looks like a baker. And he is covered with little scales, as if he had been snowed on, and his house is dirty and full of scales and stone dust.

It all happens the opposite way with the painter, speaking of excellent painters and sculptors, for the painter with great comfort sits before his work, dressed in clothes that please him, and moves the very light pencil with the lovely colors. His house is polished and full of beautiful paintings. He is entertained often by music or readings from various and beautiful works, which, not being mixed with din of hammers or other noise, are heard with great pleasure.

Also in finishing his work the sculptor has to make many sketches of each round figure in order that it be pleasing from every aspect. These sketches are made with the working together of projections and depressions, and this height and depth can only be represented correctly if one places one's self back at the side so that one sees them in profile, that is, so that the contours of the depressions and projections appear surrounded by the air that touches them. But really this does not increase the fatigue of the artist, since he, as well as the painter, has true knowledge of all the contours of things seen from every side. This knowledge is always at the disposal of the painter, as well as the sculptor. But the sculptor, having to carve where he wishes to make intervals between the muscles
and to leave where he wishes the reliefs of these muscles, further than having made their length and breadth, cannot make the figure correctly unless he moves himself across, bending or raising himself in such a manner that he sees the true height of the muscles and the true lowness of the depressions; and these are judged by the sculptor in such a position. By this manner of working they are corrected, otherwise he could never finish well or get the true form of his sculpture.

This manner they say is fatiguing on the mind of the sculptor, because he does not have any other except physical fatigue. For as to the mind, or I shall say judgment, this has nothing to do except in the profile to correct the outlines of the members, where the muscles are too high.

This is the proper order in the sculptor should carry out his work, and the order is guided by the true knowledge of all the termini of the figures of the bodies in every way.

Lud.43. The sculptor says he cannot make a figure without making an infinite number, by reason of the innumerable contours, which have a constant size. It is replied that the infinite contours of such a figure reduce themselves to two half figures. These halves, being well proportioned, compose a round figure, and having their respective reliefs in all their parts, answer themselves, without other cunning, for the infinite figures that the sculptor says he makes. If you make a figure
in half relief seen in front, you will never say you have done more work in demonstration than a painter does in a figure made in the same view, and the same applies to a figure seen from behind.

But low relief requires incomparably more invention than full relief and in this it approaches in a measure even painting, because it is subject to perspective. And full relief does not trouble itself at all with such knowledge, because it adopts simple measures as it has found them in life. And in this regard, the painter learns sculpture more quickly than the sculptor painting.

But to return to the subject of low relief, I say that it is done with less physical fatigue than sculpture in the round, but with much greater consideration, because in it one has to consider the proportion of the distances interposed between the first and second parts of the bodies, and between the second and third, and so on. If these are noticed by you who have knowledge of perspective, you will not find any work in low relief that is not full of errors in cases of more or less relief than is required for the parts of the bodies, which are more or less near to the eye. These errors will never occur in sculpture in the round, because nature aids the sculptor, so that he who works in full relief avoids the difficulty.

Lud. 40. The sculptor says that low relief is a kind of painting. This in part may be accepted, as far as drawing is concerned, because it has to do with perspective. But as concerns the shades and lights, it is false in
sculpture and in painting, because the shades of low relief are not of the nature of full relief, as, e.g., the shades of the foreshortening. It does not have the darkness of painting or of sculpture in the round. But this art is a mixture of painting and sculpture.

Lud. 39.

If you say there is some sculptor who understands what the painter understands, I respond to you that in so far as the sculptor understands the principles of the painter he is a painter, and in so far as he does not understand them he is simply sculptor. But the painter must always understand sculpture, that is, the natural model, which has relief, that by itself generates light and shade and foreshortening. On this account many return to nature, because they are not scientists in the theory of light and shade and perspective. So they portray nature, because only such portrayal without other science or theory of nature can be practiced in this way. Of these there are some who through glass or other transparent papers or veils look at objects in nature and draw them there on the transparent surface, and who with the rules of proportionality outline the profiles, add some strokes within them, then fill them with chiaroscuro, noticing the position and quantity and figures of shades and lights. This is to be praised in those who can get near the effects of nature with the fancy but only use such means to lessen the fatigue somewhat and in order not to lack in any particular of the true imitation of the thing which ought to be made similar to nature in every point. But such
practice is to be blamed in those who cannot portray
by themselves nor theorize with their minds, because
with such laziness they are destroyers of their genius,
nor can they ever make any thing good without such
aid. And these are always poor and wretched in their
invention or composition of histories, (historical
pictures), which is the end of this science, as is shown
in its place.

Lud.37. The sculptor says that his art is of more worth
than painting, because it is more eternal, having less
reason to, moisture, fire, cold, and heat than painting.

Lud.38. It is responded that such permanence is the virtue of
the carved material and not of the sculpture, and in
this point the sculptor cannot attribute the glory to
himself, but must leave it to nature, creator of the
material./ Besides, such merit cannot be in painting,
painted with glass colors on metals or terra-cotta,
which is melted in a furnace and then polished with
various instruments and made a smooth and lustrous
surface. At the present time one sees this done in
various places in France and Italy, especially in
Florence in the family of the della Robbia, who have
discovered a way of carrying out every great work in
painting on glazed terra-cotta. It is true that this
is subject to percussions and breakage, as is marble
and sculpture, and does not defy destroyers as the
bronze figure does. But in durability it is classed
with sculpture and in beauty surpasses it beyond comparison,
for in the former are united two perspectives, and in
sculpture in the round there is none that is not made by nature. If this sculpture in bronze is eternal, painting with copper and glass is absolutely eternal. While the bronze remains black and ugly, painting is full of varied and pleasing colors and of infinite variety, of which we have spoken above. If one wishes to speak only of panel painting, still I am willing to judge between this and sculpture, saying, while painting is more beautiful and of more imagination and more copious, sculpture is more durable; it has nothing more. Sculpture with little (mental) fatigue shows that which painting appears to be. It is a wonderful thing to make things impalpable appear palpable, things plain relieved, things near distant. In fact, painting is adorned with infinite speculations that sculpture does not make use of.

If the sculptor says he cannot replace material when he has taken too much from his work, it is replied that he who takes away too much knows little and is not master, for he is called master who has a true science of his work. If he has the measure in his power, he will not remove what he ought not to. Therefore, we say such defect is in the worker and not in the material. This is a weak argument, to try to prove that the impossibility of remedying a thoughtless act puts the work in a higher rank. I say justly that the genius of the master who makes such errors is more difficult to correct than is the work marred by him. We know well that he who is experienced will not make such errors, rather with good rules he will go about taking
off as little by turns as will promote his work well.

Lud. 36. But I am not talking of these, for they are not masters, but spoilers of marbles. Masters do not trust to the judgment of the eye, because it continually deceives, as is proved by the fact that he who wishes to divide a line into two equal parts according to the judgment of the eye is often deceived in the attempt. On account of this mistrust of the eye, good judges always doubt - the ignorant are those who do not -, and are continually regulating themselves with the knowledge of the measure of each length, breadth, and thickness of the members, and doing so, they do not take away more than they ought.

Lud. 43. The sculptor responds that, working with marble, there is discovered a break which is the cause of the error, and it is not due to the master. It is answered that this sculptor is in the same condition as the painter whose panel on which he paints is broken and injured.

Lud. 45. Yet the sculptor, if he works in clay or wax, can take off and add on, and when this is finished, it is easily cast in bronze. And this is the final work and the most permanent that sculpture has, since that which is only of marble is subject to destruction as bronze is not.

Lud. 36. The painter has ten different considerations with which he completely carries out his work, that is, light, shade, color, body, figure, situation, remoteness, nearness, movement, and rest. The sculptor has to consider only body, figure, situation, movement, and
rest. He does not trouble himself with light and shade, because nature itself produces them in his sculpture; with color, not at all; with remoteness and nearness he troubles himself only half way, that is, he uses only linear perspective, but not that of colors, which vary at different distances from the eye in color and in distinctness of their outlines and figures.

Therefore, sculpture involves less reasoning, and consequently is less fatiguing on the mind than is painting.
Part II.

Critical Analysis of the Paragon

A. Occasion for and date of the production of the Paragon.

With the present limited data it is impossible to arrive at a complete knowledge of the circumstances under which the paragon was written. The date of the origin of some of the ideas in it can only be approximated. Richter believes that Leonardo began writing his manuscripts about 1489, and he dates the manuscript, Ashburnham I (2038 Bibliothèque Nationale), which contains all the passages in original manuscripts that have parallels in the Paragon of the Vatican copy, 1492, without, however, giving the details of his reasons for doing so.

There is a sonnet by Bernardo Bellincioni (d. 1492), court poet of Ludivico il Moro, that is of some service in helping to date the Paragon, because it contains suggestions that would lead us to believe that he knew something of Leonardo's discussion. This would place the origin of some of the Paragon at least not later than 1492. Also Bellincioni's probable knowledge of the Paragon and more especially a fact which we shall present below point to Milan as the place in which the Paragon was written. And if such is the case, we must assign it to a time subsequent to 1481, the earliest date that Leonardo could have gone to M.

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2. Richter: op. cit. v.I, p.xv: "The exact dates indeed can only be assigned to certain notebooks in which the year is incidentally indicated, and in which the order of the leaves has not been altered since Leonardo used them. The assistance these afford for the chronological arrangement of the mss. is generally self-evident. By this clue I have assigned to the original Mss.---the order of their production." 3. The sonnet (quoted by Malaguzzi-Valeri in La Corte di Ludovico il Moro, v.I,p.507) was inspired by Leonardo's painting of Cecilia Gallerani and represents nature as complaining because Leonardo had surpassed her by his art. It is much like some of Leonardo's argument for the superiority of painting (e.g. Par. XXXII 21 ff), and, other things being equal, we favor the superior genius as originator of the ideas.
The most certain and direct references to the Paragon made by early authors occur in Lomozzo's *Trattato dell' arte della Pittura*. Here Lomozzo speaks of the book he had read a few years before, written by Leonardo ("with left hand") at the solicitation of Ludovico Sforza, in which Leonardo discussed the comparative virtues of painting and sculpture. Lomazzo enumerates a number of Leonardo's arguments on the subject, and they coincide quite perfectly with those we find in the Paragon. The very obvious reason for his saying nothing at this time of the other arts considered in the Paragon is that he was then treating in his own *Trattato* of the relation of physical fatigue to the dignity of an art, and it is only in the division on sculpture that this argument is developed in the Paragon. Lomazzo later refers to Leonardo's discussion of painting and poetry. From these facts we may conclude that the Paragon was written for Ludovico. As Lomazzo saw the "book" it was in manuscript form and evidently not prepared for Ludovico's reading, else it would surely have been written in the normal order instead of from right to left.

1. This: Leonardo da Vinci, p.143.
2. Richter, *op. cit.* v.1, p.242) speaking of Lomazzo's reference, says: "The existence of any book specially written for Ludovico il Moro on the superiority of painting over sculpture is perhaps mythical. The various passages in praise of painting compared not merely with sculpture but with poetry, are scattered among manuscripts of very different dates." But the only passages Richter gives that correspond to and have the idea of the Paragon are the Ashburnham I (2035 Bib.Nat.–he dates it 1492) and Windsor A. IV (he dates this about 1515), and the passage in this second manuscript is not found in the Vatican copy. The way in which the subject of the Paragon is discussed, also, Richter uses as an argument in his favor. But I have attempted an explanation of that matter below. Jordan *op. cit.* VII) thinks Lomazzo refers to the Paragon.
as Lomazzo indicates that it was written. It seems probable then
that since it arose at the instigation of Ludovico, it was to be
read at his court by Leonardo himself, who was accustomed to the
left-handed writing. Varchi's Due Lezzone written in the middle
of the sixteenth century is an example of a discussion of this
nature delivered as a lecture. Varchi presented his comparison
of painting and sculpture in the Florentine Academy in 1546.

We can only conjecture as to whether Leonardo had
worked his discussion into a more organized whole that has been
lost and whether it contained more or less than our copy. The
Vatican copy contains two fairly distinct divisions, one treating
of science and the scientific character of painting and the other
of the comparative virtues of the arts, so that the "book" written
for Ludovico may have comprised only the second part. The evident
praise of painting that is in the first part, however, and the
proof of the scientific character of painting, serving as an
explanation of the later references to painting as a science, make

1. Seidlitz (op. cit., v. i, p. 293) connects the Paragon with the
"duello" which Pacioli (Divina Proportione, p. 32 - dedication
to Ludovico il Moro) says took place before Ludovico Feb. 9,
1496. Seidlitz says: "Wahrscheinlich wird diesen Aufzeichnungen
eine Redewendung zugrunde gelegen haben, die nach der damals be-
liebten und von Pacioli als Duelle benannten Weise vor Lodovico
il Moro ausgeführt worden ist." But "duello" could not refer to
a declamation such as Leonardo's. However, Seidlitz' conjecture
that Leonardo's discussion was presented before Ludovico seems
plausible, as I point out. 2. Varchi: Due Lezzone, p. 56.
3. Lomazzo's reference to Leonardo's emphasis of the importance
of mathematics for painting and to Leonardo's explanation of "all
the fundamental principles of mathematical painting" would lead
us to believe, however, that he had seen the first part of the
Paragon (See below, p. 105). In speaking of the representation of
distance by aerial perspective he gives an indication that he
could not have meant by this "book" written for Ludovico the
whole of what we know as the Trattato della Pittura: "-- non le
hanno però ad alcuno insegnate, né scritte, salvo V. Foppa,
A. Mantegna, Leonardo, e B. Zefalé, delle cui opere scritte di man
A good deal of space is devoted to this subject in Leonardo's
Trattato (See Ludw. Das Buch von der Malerei, XVIII, #202-227).
this division a satisfactory and valuable preface to the comparison of the arts. In spite of the repetitions and lack of finish generally that characterize the Paragon as we have it, judging from Leonardo's usual procedure, we should believe that it never attained a more advanced form. He may have used it only as notes for a lecture that he delivered at the court.

The discussion's being written in the form of a debate may be accounted for in part by the popularity of that manner of writing at this period and in part by the fact that debates actually took place at Italian courts on subjects of this nature. It is natural that they should have been customary when the best representatives of the various arts and sciences were gathered at the courts. Indeed, from the fact that such debates did take place and from the form of the Paragon, it seems probable that it was based upon a debate which actually took place between representatives of the four arts.

An important consideration to be kept in mind all through the study of the Paragon is this fact that it is written in the form and in the spirit of a debate. And Leonardo, just as the first speaker in a debate, does not exercise himself to present all the arguments his opponents might make with full right and justice. On the contrary, he omits some of their best reasoning, and taking always the painter's viewpoint with regard to the whole subject, he anticipates only those things that may be brought forward in favor of the other arts which he feels he can convincingly prove to be surpassed by painting. In general, we find this part admirably and sincerely taken. There are very few passages that impress one as being mere sophistry and empty argument.

1. See below pp. 72, 82, 85, 96. 2. E.g., Castiglione's account in The Book of the Courtier (See below, p. 81).
B. Painting as a Science

It seems strange at first thought to find painting placed among the sciences. But why do we think of it strictly as an art? Surely we arrive at this classification by considering only the result and neglecting the process. We look at the finished painting; it gives us pleasure, raises our emotions to a higher and nobler plane, and stands to us for high cultural value in general. Indeed, Leonardo does not bar painting from the arts; far from that, he classes it as the very highest among them, and emphasizes this side of its nature by proving that it is a liberal art. But we see justice in his other argument, the one for the scientific character of painting, when we look at painting from the standpoint of the artist, especially such an artist as Leonardo. We hear a great deal about Leonardo as a scientist and speculations as to whether this phase of his activity was a detriment to the artistic. The complaint is made that his interest in scientific problems caused him to leave off many works before they were finished, and again, that he spent time on science in which he might have been creating monuments of art that we might now enjoy. But his science was not disconnected from his art; rather it was a part of it, and his art was also a science. His painted figures involved careful scientific studies of anatomy.

1. Par. I ff.
2. Par. XXXI, 13; XXXIV, 6.
3. Münzt: Léonard de Vinci, p.507; Séailles: Léonard de Vinci, p.507. Leonardo's contemporaries (e.g. R. Petrus de Nuvalaria and Sabba da Castiglione), as well as later critics, made these complaints. (Séailles: op.cit.p.421)
of psychological studies of emotion and expression, and technique of painting. So too, in his landscapes, while we may be impressed by the idealism and sentiment in them rather than the naturalism, are based upon a minute, botanical study of flowers, shrubs, and trees, and a geological study of earth formations. Leonardo's pictures show, however, that he was in his practice of painting by no means dry, calculating formalist that one might expect from his continual emphasis of the importance of mathematics and other sciences. His work is full of emotion and sentiment. He is a painter par excellence of the soul. Expression of the face, movement of the body, gesture of the hand, composition of the landscape, and chiaroscuro and color of the whole work together for the portrayal of the soul life. It is just the perfect balance of opposite characteristics, the minute, scientific knowledge governed and directed always by a master who had a genius for discrimination of the fit and the significant that makes the Leonardo whom we are accustomed to designate as the wizard, the magician of the Renaissance.

Beyond these reasons we have given for classing painting as a science is the one on which Leonardo bases most of his argument, namely, the mathematical character of painting. In perspective and in the theory of sight as propounded by Leonardo we can easily admit the presence of a mathematical science.

1. See the preparatory drawings for the "Last Supper" and "Adoration".
2. E.g., in "Mona Lisa", "Madonna of Rocks", and "Annunciation".
3. E.g., Mc. Curdy: Leonardo's Note Books, FIs. 2, 9, 12; Richter; op. cit. v. I, Fig. XXV.
4. Par. I ff.
5. The character of Leonardo's theory of sight is discussed elsewhere.
6. Facioli (op. cit. p. 190) implies that at this time arithmetic, geometry, astronomy, and music were the only studies that were generally admitted as mathematical sciences. (See below p. 7 2/3.)
which is, as he points out, of the nature of geometry with its fundamental principles of the point, line, and surface. At this period in the development of painting, when the problems of perspective were just reaching their complete solution, it is not strange to find so much emphasis upon this phase. It is, however, of sufficient importance to merit emphasis at any time; for Leonardo is right in his claim that perspective is the foundation of painting. If then, perspective, a fundamental part of painting, is a science, Leonardo may be justified in claiming for painting a place among the sciences.

but Leonardo is as quick in recognizing the differences

1. The very obvious reason for Leonardo's claiming perspective as belonging peculiarly to painting rather than existing as an independent branch of science is the fact that it was immediately through painting that the science of perspective was being perfected, e.g., through the efforts of Paolo Uccello, Piero della Francesca, Alberti, and Leonardo. The same is true in large measure, with Leonardo's researches at least, with regard to the sciences of anatomy and botany. (See also Seailles: op. cit. p. 425)

2. A little later Leonardo includes his ten principles of painting, namely, light, shade, color, body, form, situation, remoteness, nearness, motion, and rest, in its scientific scope. Perspective is, of course, bound up in this group; situation, remoteness, and nearness are especially pertinent. All the others except body apply to the surface, which is one of the elements with which mathematics deals. With body or the internal structure of a solid, as Leonardo explains elsewhere, painting is concerned only indirectly; it is the thing represented; painting itself does not go further than the surface (Par. II, 16). These are the same ten attributes which Leonardo often mentions. In the Codex Atlanticus, (Fol. 90r) he explains that they are the ten different natures of things which the eye apprehends. Light is the cause of the perception of nine others, and darkness of the absence of this perception. Since these are also given as the principles of painting, we have here the equivalent of assertions that we find later, to the effect that painting comprehends all that is subject to the sense of sight.
between painting and the science of mathematics as the likenesses, though he does not seem to recognize that differences he suggests might quite as well be pointed out within the realm of painting itself, by contrasting its mathematical phases with its purely artistic. The first difference presented is that mathematics is an imitable science. A pupil can equal his master in it, while a painting stands forever alone; it cannot be copied, for it is an original creative act of the artist. The discoveries of mathematics may in a sense be said to be creations. Mathematics is a child of the mind; it is an idealization; there is nothing in nature exactly corresponding to it. Leonardo recognizes this in his discussion of points, lines, and surfaces. But it is nevertheless imitable. When a great mathematician has once led into a new path, pupils can follow him exactly in it. In the same way Leonardo might have said the perspective of the painter may be imitated, while the expression of life, the emotion, and sentiment, the real significance of his work is the product of his peculiar genius and is beyond exact imitation.

The second difference is found in the fact that mathematics considers only quantity, while painting is concerned with quality as well. The quality of art lies in the very characteristic that makes it imitable - the individual element that the artist puts into it.

The necessity of observation and experiment for science, and therefore for painting, is emphasized by Leonardo. He has no patience with pure speculation that pretends to be science. In

1. Par. IV, 22 ff.
2. It is only the mechanical phases of sculpture and writing that can be called imitative in contrast to painting. (Par. V, 1 ff).
4. Par. VI, 13 ff.
true keeping with this principle is his delight and care in
observation and experiment in painting that we mentioned above.
But here Leonardo becomes involved in a problem that for a century
after him received no clear recognition or attempt at solution.
He contends that nothing is real science that does not proceed
mathematically, and, at the same time, that pure speculation can
never attain the truth. Mathematics is, as we have said, purely
rational, and no observations can help it because results of
observations must be imperfect. Geometrical figures, for example,
are perfect, ideal; nothing is found in nature that can measure
up to them. The physical scientist is, like Leonardo, unwilling
to give up either mathematics or observation. Empiricism is
absolutely essential for progress, and mathematics is just as
necessary for generalization and formulation. But if mathematics
is ideal, what has it to do with observations of nature? There
is the problem. And it is to the raising of this problem, perhaps,
to the suggestion of the combination of rational and experimental
knowledge, that Leonardo most owes his importance in the history
of science.

1. Not until the time of Bacon and Descartes.
2. Par. II, 6.
3. Par. II, 7; VI, 13.
4. "L'expérience comme point de départ, le forme mathématique
   comme point d'arrivée, telle est la conception de la
   science de Léonard." (Séailles: op.cit. p.201).
C. *Praise of the Eye*

Leonardo's comparison of the senses and his ordering of the arts partly in accordance with the results of this comparison cannot be considered superficial, as one might at first believe. If he had compared at length the sense of taste, for example, with that of sight, if he had taken care to prove that a perfectly executed painting is superior to a perfectly prepared dish, we should have reason for thinking him superficial and absurd. But he recognizes at once that taste, and along with it, smell and touch, will generally be excluded from the rank of aesthetic senses; for almost his entire comparison concerns only sight and hearing. The others are mentioned only incidentally.

Some of the conclusions he arrives at in his comparison of the senses are too sweeping. His argument that the ear only nobles itself by hearing the things recounted that the eye has seen, that if the historian, poet, or mathematician had not seen things with his eyes he could not report them in writing, is true only in a limited sense. There are many things, indeed, to which one could not do justice in writing without having seen. Original descriptions of actual appearances could not be made by a blind person. But history gives plenty of examples of great thinkers and writers who had not the sense of sight. All three of the branches that Leonardo mentions in this connection, give much scope for the blind scholar, although he could not carry them into all the directions into which they are extended by one who

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1. Par. XII, 5, 8, 22.
2. Par. XI, 15.
3. A modern example is Helen Keller.
sees. And if we should imagine the blind writer in such a position that he could not benefit by descriptions of things which other people see, his fields would be yet more limited, but still there would be much for his intellect to produce.

As for Leonardo's argument that "the deaf only loses the sound made by the motion of the vibrating air, which is the least thing in the world", he might quite as well have said that the blind loses only the sensation produced by the light waves, which are quite as insignificant in themselves as are the sound waves. Obviously, the reason Leonardo did not see this answer to his argument is that he knew nothing of the modern theory of light waves, that he thought of sight as being caused by images diffused through the atmosphere, which, though intangible, to be sure, yet have a real existence. The blind person then would lose something of more significance than the vibrating air which would be lost to the deaf.

Leonardo more than once refers to sight as being more certain and more dependable than the other senses. He speaks of the poet transmitting his message to the common sense by way of the hearing, which carries to the sensitive medium more confusingly and with more tardiness representations of the things named than does the eye. At one time he gives as the reason for this the fact that the eye sees by straight lines. But in the Codex Atlanticus (Fol. 90r) we find more subtle reasoning. Here

1. Par. XII, 14.
2. Par. XIII, 6. This naïve belief in images thrown off from objects was a vestige of classical theory. (See Beare: Greek Theories of Elementary Cognition, p. 29 ff.)
3. Par. XI, 24; XIX, 24; XXI, 8.
he gives a detailed theory of how sensations are produced. Images of the objects are sent from the objects to the sense organs, these transfer them to the sensitive medium (impressiva), the sensitive medium sends them to the common sense (il senso comune), which is the seat of the soul and acts as judge of the messages coming from the senses and establishes these messages in the memory. That sense is most rapid in its action which is nearest to the sensitive medium. Therefore, the eye, being highest, is the chief of all.

Leonardo in one place seems to make sight extend to the imagination of the artist: "The works which the eye commands to the hands are infinite, as the painter shows in the invention of infinite forms of animals, herbs, plants, and places." And, truly, if it were not for sight and the pictures we are able to form because of sight, the imagination could not create the things that we see the painter representing.

We find in general that there are two sets of criteria by which Leonardo judges the senses - and here we become involved in his idea of the purpose or end of art, which we shall consider later. The rank of the sense depends both upon aesthetic and practical value. Thus, some of the reasons given for the superiority of this classification of the steps involved in the production of sensation Leonardo cites "the ancient speculators" as authority. (Cod. Atl. Fol.90r) And we do find most of it as early as Aristotle. (Beare: op. cit. p.276 ff.) The one new faculty that Leonardo introduces is the impressiva. (I have followed Richter's translation of this as sensitive medium.) There seems to be very little significance in this. Leonardo evidently felt the need of a general medium to which all the senses might appeal by way of transmission to the common judge, a broad road, as it were, into which all the diverging branches run before they reach the judgement.

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2. Par. XI, 7.
of sight are that it is necessary for astronomy, cosmography, and navigation, it serves animals in procuring their food. But its greatest virtue consists always in its appreciation of beauty. Any one, Leonardo says, would rather lose hearing, smell, and touch than sight - "only not to lose the beauty of the world".

If we should leave the decision on the comparative virtues of the two senses to a general vote on the question of whether one would rather lose sight or hearing, undoubtedly it would be found that the people hold more tenaciously to sight. A prominent item in the vote, however, would be the point we just now found Leonardo recognizing, the use of sight in the various activities of life. One can, as Leonardo suggests, get along fairly well without hearing by the use of sign language. One is able to learn the ideas of others to a great extent through visual reading. But looked at only from the standpoint of enjoyment, sight again would be held the more valuable, because to most people there is more for the eye to enjoy than for the ear.

However, we have not yet reached a purely aesthetic decision. That must rest upon this question: In quality rather than in quantity, which of the two, sound or sight, is able to give the greater pure, aesthetic enjoyment? Here is where the disagreement always comes in. And the question, it seems to me, involves so great a personal equation that it can never be answered in a final and indisputable manner. Just as we recognize that the great music lover has a power of appreciation of music from which the masses are excluded, while the talented connoisseur of painting has a keen sensitiveness to the delicate nuances and harmonies of color which exceeds that of all others, so we must not think it strange that the one perceives greater possibilities in sound, the other in sight.

1. Par. A, 26; XIII, 3.
2. Par. XII, 8.
3. Par. XIII, 14.
D. Painting, Poetry, and Music.

Leonardo undoubtedly got the suggestion for his first comparison of painting and poetry, calling them mute poetry and blind painting, from preceding authors. It originated, as far as we know, with Simonides. But he and later writers made the metaphors favor poetry entirely. Simonides calls painting silent poetry and poetry speaking painting. Leonardo sees injustice in this. If you call painting dumb poetry, he says, you should call poetry blind painting; for it can describe only with words; it cannot place its ideas before you so that you can see them. And if you say that poetry is speaking painting, then you must recognize that painting is seeing poetry. There is more fairness in this classification, it seems to me, than in that of Simonides.

When Leonardo concludes that we may give painting to the judgment of one born deaf and poetry to the judgment of one born blind, we remember his assertion that the poet must have seen that which he writes about. And now he gives the sequel to this, that one born blind is not able to even judge poetry efficiently; he cannot understand all the poet talks about. The very fact that one born deaf is able to understand painting quite perfectly and besides can appreciate much of what poetry consists in is a proof of what was said above of the field of sight being more extensive than that of hearing. Indeed, a strong argument for the supremacy of sight might be made in thus con-

1. Par. XIII, 19.
4. Par. XI, 18.
5. Par. XIV, 6.
7. I.e., through visual reading one gets the content of poetry.
nection. For is it not true that for the majority of people who have sight visual images play an important part in every form of sensation? Odor, taste, touch, and sound immediately call up mental pictures of the objects that produce these sensations or are otherwise connected with them. And the visual suggestions are for the most of us more vivid than any other mental suggestions we experience.

Leonardo's description of how a painted beauty "makes all the senses with the eye wish to possess it" shows an understanding of the close connection of the other senses with that of sight. He recognizes, too, that touch is the one most clearly connected. Actual touch, he says, is lacking in a painting, but this gives no hindrance to the understanding.

Leonardo's expressions of the relations of sight to poetry are sometimes negative. He says, for example, that the blind is not efficient either in writing or appreciating poetry; 

1. Par. LV, 25.
2. Although the sense of touch is usually thought of as being located in the sensory papillae of the cutis, the faculty is also intimately associated with that of sight in the eye (Hildebrand: The Problem of form, p. 14). We do not need to touch an object to know whether it is rough or smooth, spherical or cubical. The kinesthetic use which we make of our eyes can tell us these things. It is upon the relation between the visual and the kinesthetic practices of the eye that painting is dependent. If we had to depend upon the feeling produced by contact of the body with an object for a tactile impression of it, painting would be wholly lacking in this. Contact with the flat surface could give no record of the third dimension. Also the plane surface of the painting gives no chance for the kinesthetic use of the eye except for two dimensions. The movements that determine the third dimension are only suggested. So the problem of the painter is to do his work in such a way as to give the most direct and the strongest suggestions of kinesthetic movements in the plane visual projection. It is to this accomplishment, this ability to make a plane surface appear relieved, that Leonardo often refers as the greatest marvel of the painter's art. (Leonardo: Tratt, Ludwig AVIII, 93-94; Par. XXXII, 28; XXXV, 11; XXXVI, 2.

3. Par. AI, 16; XIV, 6.
but when he discusses the poetry itself, he often considers it as serving the ear only. A good instance of this attitude is given by his statement that "he who wishes to present to the ear what ought to be presented to the eye sins against nature." And he adds, "Let the office of music enter there and do not put there the science of painting, true imitator of the natural forms of all things." Such characterizations recognize the virtue of poetry as consisting only in its rhythm and harmony, only in its musical qualities. These are, probably, the qualities that would generally be counted the characteristic and significant ones for poetry. If we should look to the content of poetry for its distinctive feature, it might as well be written in the form of prose - and this is, indeed, what it would be for the born-deaf. And yet, certainly no poet would allow that the content does not count. It is of importance along with the musical qualities. So, even if we should concede that sight is a more "noble" sense than hearing, it is not quite fair to conclude, as Leonardo does, that for this reason painting, servant of sight, is superior to poetry, servant of hearing. For it might well be argued that the born-deaf can get much pictorial enjoyment from poetry, that with its descriptions and suggestions poetry serves the sight by calling up in the memory and imagination pictures which one's associations with the appearance of nature make possible.

Leonardo indeed recognizes this characteristic of

1. Par. ΕΙΙΙ, 19; ΙV, 1; ΒV, 6; ΕVII, 18; ΙΧ, 1.
2. Par. ΒΧ, 3.
3. Prof. Max M. Meyer.
4. "Noble" is used by Leonardo in a sense, though uncommon today was formerly given to it quite generally (See e.g. Ben Jonson: *Timber*, p. 49). It means of importance or significance.
poetry; it gives tardy pleasure to the eye, he says. But in this instance he goes just as far to the other extreme; he takes literary content as the whole virtue of poetry. For it is only in this attitude that he can make his comparison of poetry to imagery or shadow, and painting to reality. The direct sensuous appeal of descriptions given in poetry consists in symbols and letters, which symbols call up in the mind the visual image. But with painting the sensuous appeal is through an image which corresponds exactly to the mental picture. And the mental picture in the latter case is assured a much greater definiteness than in the former; for that produced by words is likely to be shadowy and capricious. But if we take Leonardo's preceding definition of poetry and consider poetry for the sake of its rhythm, we cannot call it imagery or shadow in comparison to painting as reality; for it is directly to the sense that the rhythmic sound makes its appeal; it is not born in the imagination.

But when Leonardo does recognize the literary content of poetry, it is only description that he considers legitimate. If the poet writes of god or of the heavens, he is in so far a theologian or an astronomer. Even in descriptions of nature he must be more than a poet. And when Leonardo adds that "the painter by himself without aid of sciences or other means goes immediately to the imitation of these works of nature" we are likely to be startled. That Leonardo, who studied so many branches of science and applied them directly to his art, should state that the painter goes to his work without the aid of sciences

1. Par. xx, 4. 2. Par. xx, 15.
3. Par. xxiii, 16 ff. 4. Par. xxv, 8.
or other means! But he considered painting itself a science; and
his studies of such sciences as mathematics and astronomy, being
done in large part in connection with his art, it is not unlikely
that he considered the painter within his own realm when he used
these studies. Further, Leonardo probably means to distinguish
between pure description or representation on the one hand and
theory on the other, when the poet discourses or theorizes of
theology or philosophy, he is making a "feigned mixture." And
in this free feigning, which is the most feeble part of painting,
the poet is placed on a level with the painter. This "free
feigning", then, the painter would be indulging in if he should
attempt to express philosophical or theological theories with
his art. It is not strictly legitimate for either painting or
poetry.

Description, then, according to Leonardo, is the only
field open to the poet, and even here he is surpassed by the
painter. This Leonardo insists upon again and again, and it is
true in regard to many things, at least. Take his example of
the presentation of the works of the poet and the painter to
King Mathias. Undoubtedly the lover will be attracted more by
the painting of his beloved than by the description. Recognition
plays a large part here, and that which calls forth this rec-
cognition most completely and quickly is the thing that will
attract one more. The same will be true with the landscape in
which one has enjoyed oneself in times past. But when it is a

1. Par. XXV, 19.
2. In practice, however, Leonardo did not exclude philosophy from
   art. His Adoration is a paramount example.
3. Par. XVIII, 25; XX, 15; XXI, 7, 28; XXII, 25; XXIII, 15; XXVI, 86; etc.
4. Par. XVII, 6.
5. Par. XXIV, 16.
question of scenes with which one is not familiar, the same conclusion is not so certain. It will depend a good deal upon the character of the person to whom the art is presented. Some, who are more accustomed to reading, and especially those who do not depend upon themselves for the interpretation of paintings, will very probably enjoy the poet's description more than the painter's work. People of somewhat similar nature we see in art galleries unable to enjoy a picture without reading a description of it. This is opposed to Leonardo's argument that the work of the painter can be immediately taken in by the spectator, while that of the poet must often have someone to explain it. But Leonardo does not make any exception whatever to his assertion that the painter surpasses the poet in description. He would not even make an exception of Dante - for he is probably thinking of that poet when he speaks of the painter's invention in making beautiful things that enamor him, or monstrous things that terrify, and devils in hell and when he says that the painter surpasses the poet in describing "inferno or paradise and other delights or horrors."

The fault that Leonardo finds with language, and therefore with poetry, for its inflexibility would appeal to a Bergsonian. Compared with the variations we see in nature, and which painting can obtain, words are indeed cold, lifeless symbols. Imagine two faces extremely alike in general, but each differing very, very slightly from the other in every detail. How much more competent is painting to express these slight differences

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1. Par. XXI, 8.
3. Par. XXVII, 21.
than language with its limited number of symbols!

One of the most important and most strongly emphasized arguments of Leonardo for the inferiority of poetry to painting has to do with the time element. This is, naturally, an important consideration with regard to music also, because it concerns anything that is dependent upon the sense of hearing. Poetry cannot be comprehended as a whole in one moment. It is taken in word by word, and each sound must pass away before the succeeding one can be produced. To give the effect of proportion and harmony, Leonardo holds, a thing must present itself as a whole to the comprehending sense in one instant of time. Music approaches this ideal when several voices sing together a chord that forms a harmony. But even this must die and give place to succeeding ones before a whole movement can be finished. Painting, then, attains the ideal. It presents its whole work, all its proportions and harmonies immediately before the eye. Leonardo is not entirely just here with regard either to poetry or to painting. Poetry indeed makes its sensuous appeal word by word; but after this has been done, a certain view of the whole and a feeling of its harmony and proportion is obtained by the mind. And further, one is by no means able to take in immediately the whole significance of the work of a true artist. Look, for example, at Leonardo’s Adoration. In a measure the meaning and beauty of the picture are appreciated at once. But much study and contemplation are required to find and appreciate all the delicate gradations of even the chiaroscuro, to say nothing of the symphony produced by the combination

1. Par. XVII, 25 ff; XVIII, 13 ff.
2. Par. XXXI, 27 ff; XXXII, 16.
3. Par. XVII, 25.
4. Par. XVIII, 13.
5. Par. XVII-XXI.
of ages, conditions, and emotions of humanity. One could not expect to grasp in one moment all the significance of a work on which a talented artist had spent years of study. But let us assume that the spectator has had time to examine all the details of the picture and that the listener has been allowed to hear the whole poem as many times as he likes, still Leonardo's contention is true in a comparative sense. The poem is still a thing of parts compared to the whole, instantaneous impression that the painting makes.

If memory were lacking, the conditions that Leonardo describes with regard to poetry would literally obtain; the harmony of the work could in no way be understood. Painting would, indeed, find itself in a better condition because of the instantaneous appeal that it makes. But its lasting qualities that Leonardo emphasizes would disappear. Each view of it would be as a view of a new painting. Leonardo recognizes the influence of memory; but he does not admit the importance it has in poetry. As far as the senses are concerned, it is true that "all sciences that end in words have as quick death as birth --- except the writing." But as concerns the real significance of sciences, this is far from true. Words and languages are only symbols. A scientific truth remains in the mind of a student and influences his actions long after the words of the master have been spoken and even forgot. And no writing is necessary to keep that truth alive.

There is naturally not so much attention given to the argument of permanence in the discussion of poetry as we find

1. Par. XVI, 4; XXXII, 21.
2. Cod. Atl. (fol. 90 r.) - see above, p. 12; Par. XX, 23.
3. Par. XVII, 3.
later in the section on sculpture. While Leonardo several times cites permanence as a characteristic to be desired in art, he continually warns against an over-emphasis of its importance. Permanence, he holds, is desirable, but not requisite, for art. It is no artistic quality itself, for the works of a tinker excel in permanence.

Issue might be taken with Leonardo in regard to his assertion that it is more admirable to represent the works of nature than the works of men (he is referring to words as the works of men and forms as the works of nature). If this were held to strictly, we should have to consider exact imitation to be always more desirable than any discrimination or idealization on the part of the artist. However much he insists upon the importance in painting of imitation, such a conclusion as this is far from the mind of Leonardo, as we shall see. One of the arguments of the poet is that he has greater power of invention than the painter. This Leonardo denies.

That he did not consider the subject matter of the supreme importance is shown by his resentment of the poet's imputation or the glory of painting to the thing represented, rather than to the painter. The taunt with which he answers the poet, however, is unfair. The poet has not asked him why the paints with which his picture is made are not adored. Such a challenge would correspond to Leonardo's question: "Why do you not represent things with your words so that your letters that make these words will be adored?"

1. Par. XV, 16 ff; XVI, 27; XXXII, 21; XXXIII, 21; XLIV, 9 ff.
2. Par. XVI, 27.
3. Par. XIX, 11.
4. Par. XXXII, 22; XXXIV, 24; XXXIII, 26.
5. Par. XXIII, 5.
6. Par. XXIII, 8.
No one would deny Leonardo's assertion that the message of painting is more communicable to all peoples than that of poetry. A native of the Occident upon his first experience with Oriental paintings might be inclined to feel that foreign arts need interpreters, as well as foreign languages. But although one may not be able to get unaided all the significance of the art, most of the forms, by their resemblance to things one has seen, will probably be recognized, and at least the harmony of lines, colors, and shades will be appreciated. But if one knew nothing of a language of a people, one could understand nothing of its poetry.

Leonardo is not fair in challenging the poet to put the name of God beside a painted image to see which receives the more veneration. A name, in itself, is not poetry. But taking for the comparison even a poem concerning God, painting is more successful in causing worship and veneration, as Leonardo illustrates with his example of people journeying long distances to worship before a painting of a divinity. Such circumstances are to be explained by the fact that the masses find it easier to worship an object than an idea, or at least they want something tangible to stand for the idea. That the worship of the ignorant in such cases is not dependent upon the excellence of the painting is shown by the satisfaction given by the crude images before which the individual often worships privately. For some people the more life-like image will inspire more veneration.

1. Par. XXVI, 4.
2. One may, indeed, get a certain enjoyment in hearing poetry read, from the rhythmic sound, even without an understanding of the language.
3. Par. XXVIII, 14.
4. Par. XXVIII, 13.
5. This is true in general of people of the Occident.
for others the less naturalistic is more influential because of its mystic qualities.

Taking this problem on a higher plane, that is, considering painting for its own, artistic value, the long journeys that are made are due to a fact that Leonardo has before emphasized, the fact that no copy can be made of a painting. An original work of a talented artist has qualities that no copy can reproduce. If poetry were of the same nature, the poet's manuscripts, too, would be articles of great value.

Leonardo dwells much upon the power of painting to move the emotions, the power of raising the thoughts of the spectator, of ennobling his ideals, and of exerting the opposite influences upon him. This praise of painting is justifiable; but Leonardo is not just to poetry when he depreciates its emotional influences. And the power of poetry to move the emotions does not lie only in its content, as Leonardo suggests. The rhythm and harmony of the sound of poetry are important along with the content.

Aside from Leonardo's natural favor and prejudice for painting and his belief in the aesthetic superiority of the sense of sight to that of hearing, perhaps his depreciation of poetry is to be accounted for in some measure by the decadent conditions of the poetry of his time. Oratory was deemed of much value and rhetoric played such an important role that it entered much into poetry and the latter was written for the sake of

rhetoric. Poetry was extremely popular, too popular for its own good. It was considered the correct thing to write verse, and everyone did it. So it would not be surprising if a vast amount were written that was well-deserving of Leonardo's invective against it — that it consisted in mere 'feigning of words.' Alberti casts a slur on the rhetoricians and poets of his time. "I know some painters", he says, "also sculptors, rhetoricians, and poets — if there are rhetoricians and poets in our age, ---."

With regard to music, it is interesting to note that Leonardo in his discussion always considers only the vocal, while he himself, according to tradition, was a lyre player or celebrity. It is vocal music produced by several voices to which he refers. This again is not what we should expect in view of the results of Burckhardt's researches on the subject of music. He finds that in this period of the Italian Renaissance in the singing of good society the solo only was permitted, "for a single voice is heard, enjoyed, and judged far better." And much attention was given to the specialization of the orchestra and the search for new instruments. Leonardo himself, as drawings in the Codex Atlanticus, Fol. 215 r. indicate, was interested in designing instruments.

An explanation of his rule of twenty in twenty braccia, which rule he says he will make as the musician has

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5. Par. XVIII, 13; XIX, 8; XXXII, 8; XXXIII, 9, 27.
done with voices is found in another part of his manuscripts. Here practically the same passage occurs as that in the Paragon. And on the same sheet there is a paragraph on linear perspective, telling how objects placed one beyond another at equal intervals will appear each twice the size of the one farther away, so long as the space does not exceed the length of twenty braccia.

1. Par. XXXII, 8: "Benchè le cose opposte all'occhio si tocchino l'un l'altra di mano in mano, nondimeno farò la mia regola di XX. in XX. braccia, come ha fatto il musicista fra le voci, che benchè la sia unita et apicciata insieme, nondimeno ha pochi gradi di voce in voce, domandando quella prima, seconda, terza, quarta e quinta, e così di grado in grado ha posto nomi alla varietà di alzare e bassare la voce."

2. Richter: op. cit. #99, 102.

3. See also Hertzfeld, int. to her ed. of Ludwig's translation of Leonardo's Trattato.
E. Painting and Sculpture

In the comparisons of painting with poetry and with music Leonardo was dealing with arts that affect different senses. Now the question is more one of degree of intensity and force with which two different arts affect the same sense. The element of difference in sense is more nearly eliminated. I say "more nearly" because, although painting and sculpture both appeal primarily to the sense of sight, the sense of touch is differently affected by the two. In painting, we noted above, the sense of touch is lacking as far as contrast is concerned; it is appealed to only indirectly by suggestions of kinesthetic movements of the eye. In sculpture, on the other hand, tactile satisfaction is given both by contrast - which to be sure, is hardly an artistic consideration - and by actual kinesthetic eye movements. Upon this fact we find later some sculptors basing their claim that sculpture is superior to painting. And they can turn Leonardo's own statements concerning art as an imitation of nature to their purpose. But in this they putting an unfair construction upon the ideal that Leonardo represents. Imitation is not to be taken in its literal sense. The chance for the misunderstanding comes through the fact that Leonardo did not take the care most writers would take to qualify his statements immediately they were made. We must be willing to look at the whole, to judge each part in the light of all the rest, we have already learned this in the preceding division, where we found poetry evidently considered now as one thing, and again as

1. See above p. 15, note 2.
2. Vasari, p. 90; Vasso, p. 95; Tribolo, p. 95; Varchi, p. 95, note 5.
3. Par. XVI, 4; XIX, 3; XXIII, 8; XXV, 3; XXVI, 16; etc.
4. See below p. 39.
another. Also, after a certain familiarity with the section on poetry, we shall not be surprised at Leonardo's neglecting or discounting some of the virtues of sculpture. But we shall also expect the justness of his conclusions with regard to most points he considers.

All through his discussion Leonardo contends that sculpture has less to do with theory than painting. The reason for this he finds principally in the fact that sculpture lacks the perspective of painting. The sculptor's problem is to represent his object just as it is in nature as far as form is concerned. When he has given it this form, nature does the rest, throwing it into light and shade and subjecting it to perspective of the rest of nature. Painting carries its perspective and light and shade with it. The painter is "interpreter between nature and art", or, one may say, between things of nature as they appear isolated and near by, and as they appear in a group or composition and more distant. The painter shows objects in relation to one another. He shows us that one appears larger than another because it is closer to the observer, that it appears sharper and clearer in outline because there is less atmosphere interposed between it and the eye. With these things the sculptor has nothing to do. And the subject range of the sculptor is indeed much more limited than that of the painter. Leonardo several times enumerates a list of subjects that the painter can

1. At one time he looks at it as consisting of only sound; at another of only literary content.
2. Par. XXXIV, 22; XXXVI, 17; XXXVII, 23.
4. Par. XXXIX, 7.
5. Par. XXXIX, 10 ff.
6. Par. XXXVII, 29 ff.
represent, and it is striking that he emphasizes other things than the human figure, even omits that. It does not in the least follow that he does not realize the importance of the human figure for painting. Indeed he makes it much more important than anything else in his art. But the sculptor too can represent the human figure. Leonardo only means to insist that this is not all painting comprehends. The stress he lays on this argument is probably due to his opposition to the prejudice in Italian art of his time and earlier for the representation of the human figure to the exclusion of landscape, flowers, and animals. He would have painting mirror the whole world, a requirement in which he approached the Netherlandish ideal.

"We admit at once that the painter considers many things with which the sculptor does not trouble himself, and also that the painter must understand much of the sculptor's art, because that concerns natural objects. But we would not go so far as Leonardo goes and say that there is nothing in sculpture except the mechanical execution of it that does not enter into the painter's problem. The very limitations imposed upon the sculptor by his medium, the very fact that he cannot represent any subject at will, raises problems for him that never concern the painter. Because he usually has no color to help in the portrayal of expression, because he cannot have the aid of the accessories of a landscape setting, he must concentrate all the message of his work in the forms that he can use. Leonardo himself did not believe sculpture to be such a mechanical and menial art as we

1. Par. XXI, 3 ff; XXIII, 19; XXIV, 16.
3. Par. XLIII, 10.
4. This applies to the sculptor both in Leonardo's day and at the present.
might judge from his discussion of it in the Paragon. If he had, he, with all his love of creation, would have been the last man to practice it. In emphasizing the most manual part of sculpturing, the part that is at the present time usually entrusted by the artist to his workmen, Leonardo omitted the part where the artist's real genius comes in. It is in the designing of the work, in the sketching in crayon and clay that the inventiveness of the sculptor appears. Leonardo's statement that the painter represents things as they appear, while the sculptor shows them as they are as far as form is concerned, is true for the most part. He is safe in using this as a distinguishing feature between painting and sculpture. But even in form the sculptor does not follow nature exactly. (We are not considering now such deviations from nature as are caused by idealization.) He has to suit his proportions and general form to all sorts of conditions. If he is making a statue to occupy a high position, for example, he must elongate the figure, and the upper parts more than the lower. The Greeks realized this importance of optical illusion and carried the principle even into their architecture; so we have the entasis of the column and the curve of the entablature. Thus, though not in so many ways as the painter, the sculptor also is interpreter between nature and art.

As a result of the fact that the sculptor does not go so far as the painter in creating light and shade he is more dependent than the painter upon light for the appreciation of his work. Even in a gloomy room one can get a minor understanding of the sunlight in a painting. Nevertheless, Leonardo is wrong in his contention that mental effort is unnecessary on the part

1. Par. AXVI, 5.
2. Par. XXXV, 20.
of the sculptor in representing light and shade, although it is, indeed, of a different kind from that demanded of the painter for his problems of chiaroscuro. The sculptor must, more than the painter, make his work with a view to its destined position. It can be seen quite as well with the light coming from below as from above, or any other relative direction if it has been modelled with an understanding of the position.

Leonardo's argument that the sculptor is dependent upon nature for chiaroscuro, because if he sculptured in the dark he would not be able to see the light and shade of his model, might quite as well be applied to the painter. He, too, is dependent this far upon nature, and even farther. For it is conceivable that one might model a figure from nature wholly by the sense of touch, which would of course be impossible in painting.

The assertion that the innumerable contours of a figure sculptured in the round reduce themselves to two half figures, one seen in front, the other behind, is probably the most unfounded one Leonardo makes. This full form is clearly not the same as a figure represented in front and behind by half relief sculpture or by painting. In these only two complete contours can be obtained, while in sculpture in the round any view will show a complete contour.

The analysis of low relief sculpture is clear and just. In recognizing that it is a mixture of sculpture and painting Leonardo does not mean to argue that it is bad art, as Brun believes. He only says that "as concerns shades and lights it is

1. Par. XXXV, 23.
2. Par. XXXVI, 29.
3. Par. XLI, 23.
4. Par. XLIII, 4.
false in sculpture and in painting" - referring of course to sculpture in the round. As for this, one could quite as well contend that a critic holds painting to be "false" because he says that as concerns form it is not true sculpture. This would be no objection to its validity in painting. Indeed Leonardo esteems low relief greatly, placing it in a rank above sculpture in the round and very close to painting in invention. He does not commit himself as to how much of the pictorial element he considers legitimate in low relief. But one would assume that the more pictorial or illusionistic the relief, the greater value he would assign to it, for it is because of its approach to painting through perspective that he ranks it above sculpture in the round. There is certainly none of the opposition to the employment of perspective in low relief, none of the criticism of Ghiberti, in his discussion that Brun thinks he finds there.

Leonardo rightly denies to sculpture any aesthetic superiority because of its durability. The mere fact that it will endure long is a desirable feature with him, as we have noted before, but not an essential one to artistic value.

Finally, he is just in his valuation of the sculptor's argument of the irremediable quality of his work. Mistakes in carving the marble belong to the manual part of the work and are due to poor management. In his designing, the sculptor has as much chance as the painter for making corrections.

1. Par. XLII,28. 2. Par. XLII,5. 3. Par. XLII,5. 4. Par. XLIV,9 ff. 5. Par. XLV,16. 6. Par. XLVI,19.
F. Omission of Architecture.

It is remarkable that Leonardo does not include architecture in his ordering of the arts, that he completely ignores it. He mentions it only once in the Paragon, and then it is placed in a class with vase making, weaving, and embroidering, astronomy, and mechanics, as being subordinate to painting through drawing. The most probable reason for this omission of architecture is the same that the ancients had for omitting it from the arts, the assumption that its preeminent characteristic lies in its material usefulness. Such an opinion among the ancients seems strange in view of the perfect art of the Greek temple. But such perfection was all for the adequate housing of the statue of the deity. An example of this attitude is shown by the absence in ancient writings of accounts of the wonderful sculptural decorations of the Parthenon. Elaborate descriptions are given of the statue of the Parthenos; but we do not have an authentic record of even so much as the name of the directing sculptor of the pediments, metopes, and frieze. Leonardo's architectural drawings are no more favorable than the Greek temple to the consideration of architecture as useful to the exclusion of aesthetic qualities. On the other hand, his notes on architecture concern always the useful rather than the beautiful. When we consider, too, that he laid much emphasis upon the mechanical part of sculpture as a reason for its inferiority to painting, we should expect him to place architecture much lower than sculpture, for it is much

1. Par. XXX, 27.
2. See Butcher's comments upon Aristotle's Poetics, p.147.
4. Par. XXXIX, 21.
more mechanical. He describes the sculptor himself carving his figure from marble. But the actual building process in architecture cannot possibly be carried out by the hand of the architect.

1. Par. XXXIX, 25.
2. Peladan (op. cit. p. 5) says: "Il faut conclure que la partie architectonique du traité de la peinture, négligée par Melzi dans sa copie, a été perdue." But when we see how closely the comparisons of the other arts are associated with each other, it seems very unlikely that all of a division on architecture would have been so separated from the rest as to have been neglected by the copyist.
G. The Purpose of Art for Leonardo.

Although the theoretical is blended with the practical in Leonardo's writings and the Paragon contains much of his pure theory of painting, we do not find here direct answers to questions that one would consider fundamental to an aesthetic discussion of painting today. We have to remember, first, that the Paragon, as we have it, is fragmentary and incomplete. It gives the impression of being a collection of notes, more complete, to be sure, than most of the author's manuscripts, but still not thought out completely in the relation of its parts to one another. In this respect, as in others that we shall discuss later, it shows parallel characteristics with Aristotle's Poetics. In such incomplete works as these there is danger not only that we shall allow our conclusions to rest upon isolated statements, but also that we shall trace out relationships between statements that were neither intended nor thought of by the author. In the second place, the theoretical is so intimately associated by Leonardo with the practical that we hardly ever find it alone. Leonardo was not practical in the sense of working always and only for the finished picture. Witness the few paintings he finished, and the vain efforts of his patrons to persuade him to carry out his contracts. His manuscripts, too, furnish a remarkable example of his indifference toward completed work. In spite of the indications in them of his intention to organize them, the fact that he did not completely organize a single division that has come down to us is sufficient proof that his interest in such an aim was not strong. He was, however, practical in the sense of working
always toward the solution of problems. For this, theory alone is useless, and we have noted his disapproval of it above. It is necessary—"He who practices without theory (or science) is like a sailor without helm or compass," but it must be accompanied by experiment. Take, for example, the problem of light and shade, which was one of immense significance to Leonardo. His theoretical treatment of it is very extensive, but the theories are borne out by mathematical proofs and accompanied by experiments in the technique of painting. Again, consider his drawings of grotesque heads. These seem at first thought to be done with no other aim than that of mere amusement. But based on a comparison with others of his drawings that are accepted as serious character studies, these grotesque heads may reasonably be looked upon as having the same aim. In a study of the Judas for the "Last Supper" there is greatly exaggerated muscular development, made evidently in order to gain an understanding of the expression that can be shown with the muscles. In the painting this development is diminished and softened. Also on a sheet of drawings in Windsor Castle connected by This with the "Adoration" there are three heads in the upper left hand corner that border on the grotesque, especially the one that shows close resemblance to a wild animal as it cries out in rage. There seems here indeed to be a conscious effort to express

the resemblance between man and beast when they are ruled by rage. So we may believe that in the exaggerated features of the grotesque heads Leonardo was studying expression.

But in spite of the scarcity of the treatment of purely aesthetic subjects noted above, we get enough, particularly as it is thrown in with other material, to make possible the formation of very definite conclusions regarding the principal questions that arise. Thus, in his reasons for placing one art above another we can find Leonardo's standard for judging arts and his theory regarding their purpose.

In antiquity we often find art judged from the standpoint of the true or the good, or of the useful. For example, Plato would admit into his Republic only that painting which would be useful to it in upholding the ideals of the government. In early Christian art also it was judged from this standard as concerns religion - was the work useful in the promotion of religion? Morality was consequently also a point of importance at this time. Much later Dolce, writing in the middle of the sixteenth century, criticizes Michaelangelo's paintings as being immoral. Leonardo, however, considered neither this nor the usefulness of painting as its purpose. Twice in the Paragon he refers to painting as being useful; but he does not indicate here what it is useful for. He uses the word more in the sense of worthful or valuable. The question of morality does not seem to have occurred to him at all, unless one can consider it as

1. See above, p. 35.
3. E.g. the art of the catacombs consists in large part in symbols for telling biblical stories.
4. See below, p. 103.
5. Par. XXVI, 4; XXIX, 2.
being included in the general subject of emotions. The virtue of painting is increased by its being able to move the emotions and passions. But this does not imply that painting has any moral obligation to perform. It only means that in the very characteristics that stimulate emotion and passion there is artistic value.

When we think of great paintings of religious subjects done by Leonardo, we may be inclined to think religious use was one of importance to him. And he did recognize such use; more than once he mentions it in the Paragon. But he considers it more as an incidental virtue than as a primary purpose of art. His views on the subject are not at all like those of the church patrons of his day and especially earlier. For these the theological content of the picture was the important requirement and one that earlier artists consciously strove to meet. I do not mean to suggest that Leonardo's religious paintings are not filled with religious feeling. But here lies the distinction; they are imbued with spiritual significance not because our artist is interested in promoting religion or because he feels that to be the purpose of art, but simply because they must be so to express their subjects most adequately and completely. Many times Leonardo insists upon the necessity of harmony for the perfect art. And the most important part of this is harmony of all parts with the subject. So in the "Adoration" every character is carefully studied with reference to its attitude toward the event which is taking place, for each must represent a class of humanity and all classes must be present--and we wonder at the philosophical and spiritual grandeur of it.

1. Par. V, 16; XXVIII, 13; XXXIII, 29
2. E. G. Giotto and the Giottesques.
Leonardo insists upon the honor painting brings to the artist, how it makes him almost divine and related to God. He is also eloquent in his description of the pleasure connected with his work and he uses this as marking a point of superiority of the painter over the sculptor. But the real virtue of painting to which he is directing us here is not to be found immediately in these facts, but indirectly through them. That is, the work of the artist is a creation of his genius. Therefore the painter is exempt from physical fatigue and inconvenience which is attendant upon manual rather mental work. Therefore, he is honored and related to God.

Then there is the question of imitation so much emphasized. But we have called attention above to the fact that Leonardo did not use the term in its full modern sense. A most perfect imitation of nature may not be artistic. There must be also selection, composition, and creation on the part of the artist. So Leonardo advocates the choosing of the most pleasing and appropriate parts of objects in nature and the compounding of these into a proportionate, harmonious whole. In doing this the artist creates new things, not to be found in nature. And it is to preserve this power of invention that Leonardo objects to the continued use of a transparent screen for copying objects.

In fact he seems to indicate in this connection that if the painter has a scientific understanding of his art, it is not necessary for him always to work from nature. The significance of the idea of imitation lies in the fact that Leonardo recognized in

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1. Par. IX, 9.  
2. Par. AL, 6.  
4. Par. ALIII, 18.  
5. Par. ALIII, 13.
the forms of nature objects of inspiration for the artist. He was far from being a naturalist in the sense of believing in or practicing the imitation of every detail of his objective model. But he was equally far from the idealist who sees in nature nothing of sufficient dignity and grandeur for the artist's brush. To him a work of art was the attainment of a perfect agreement, a perfect balance between the ideal and the real. The artist is interpreter between nature and man. He finds a message in nature; his problem is to transfer that message to canvas in such purity and clearness that to those to whom it was invisible in its natural setting may get it distinctly in the painting, where all superfluous material has been eliminated and the truly essential emphasized.

Balance, then, between the ideal and the real, perfect harmony throughout the composition, and the vivid expression of emotions, these for Leonardo are the principal aesthetic qualities of a work of art. The purpose of art, then, is not to be sought for outside itself, but in the satisfaction of these requirements. But art exists no less for its pragmatic purposes than for purely contentless sensuous beauty. Not only Leonardo's various demands of painting that we have been considering lead us to this conclusion, but also a definite statement in the Book on Painting to the effect that what is beautiful is not always good (good in the sense of desirable). He explains that he says this for those painters who love the beauty of colors so much that they neglect relief, "and in this error they are like people who speak beautifully without saying anything."

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1. Par. XXXIX, 3.
2. Leonardo: Tratt. Ludwig, XV, 236.
In recent years, since the vast content of Leonardo’s manuscripts is being discovered and studied, much emphasis is placed upon the originality of his genius, and rightly so. There is an amazing amount of material which was not only original with Leonardo, but which was so far in advance of his time that not until decades and even centuries afterward were the discoveries made again independently by others. But with all this we must not lose sight of the fact that Leonardo by no means scorned the help of predecessors. He took all he could get from others, though not without a thorough personal investigation of their results. The fact that he seldom cites his sources is no proof of his independence. In the renaissance period scholars were not possessed by such a fever for originality or fear of plagiarism as they are today. Results of researches obtained by anyone were accounted the property of all. Leonardo cites no authority in the Paragon. In other parts of his writings we find classical, mediaeval, and contemporary writers mentioned and in many instances enough definite information is given to prove Leonardo’s immediate knowledge of their writings. This is true, for example, of Aristotle and Vitruvius among the ancients. In the Paragon itself, however, we can find influences of general classical theories and of more definite theories of writers of the early renaissance, especially of Alberti.

1. These belong both to the realm of painting and mechanics, anatomy, botany, geology, etc. See Séville, op. cit., p. 181, 226 ff., 370; and the mss. of Leonardo. 2. Richter: op. cit., p. 1446, 1454, 1477-80, 1502. 3. A survey of all the Ren. art writers we discuss will show this.
In our examination of the art writings of the sixteenth century we shall find theories of Leonardo often recurring, sometimes with a different emphasis from that which they were given originally, but still with sufficient similarity to betray their source. Especially, we shall see how popular his subject of the comparison of the arts became and how often his own arguments were used - all this in spite of the fact that his manuscripts had not been published.

1. *Varchi: Due Lezzone*, p. 89: "Io non penso che niuno di qualche ingegno si ritruovi in luogo nessuno, il quale non sappia quanto grande sia stata sempre, e sia hoggi più, che mai la contesa, e differenza non solo fra gli scultori, e pittori, ma fra gl' altri ancora, della nobiltà, e maggioranza fra la Pittura, e la Scultura, credendo molti, e affermando, che la scultura sia più nobile della Pittura, e molti per lo contrario affermando, e credendo, che la Pittura sia più nobile della Scultura, allegando ciascuno in prò, e favore della parte sua varie ragioni, e diverse autorità, ne penso ancora, che alcuno mi creda tanto arrogante, e presuntuoso, che io osassi di muovere questa dubitazion, e disputa per diciderla, e risolverla havendo pochissima cognizione dell' una, e manco dell' altra ---"
A. **Classic Influences upon Leonardo.**

That Leonardo's knowledge of the ancients was not insignificant is now generally allowed by critics. Perhaps Pauwisson exaggerates the case when he calls him an admirer and disciple of the ancients. Such a position was certainly not openly taken by Leonardo, as his expressions of independence of authority indicate. His direct references to ancient writers in his manuscripts, as well as his general indications of classic knowledge show his relation to antiquity to have been that of an investigator who goes to his sources with a frame of mind that will allow him to accept nothing that cannot be borne out by his own personal investigations.

In spite of the importance of the Platonic Academy in Leonardo's day, it could have exercised very little positive influence upon him. The subtle and mystical speculations indulged in by Plato and the Neo-Platonists represent a mental attitude totally foreign to Leonardo's. At first thought we should say that Plato's theory of knowledge is diametrically opposed to that of Leonardo; for Plato had no use for the senses as a means of acquiring knowledge. But when we remember that in spite of the great importance of empiricism for Leonardo, it represented only half of his theory, we see the contradiction is not quite

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1. Séailles: *op. cit.* p.190; Ludwig: *Das Buch von der Malerei*, Quell. T. K., v. AVII, p.120.
3. E.g., Richter: *op. cit.* # 10, 11, 12.
4. E.g., Richter: *op. cit.* # 879, 880, 901, 904.
5. Plato is mentioned only once in the manuscripts published by Richter; then it is in regard to a subject in no way connected with the Paragon, or with painting. See Richter: *op. cit.* #939.
so great. In his insistence upon the importance of mathematics plato is like rather than unlike Leonardo. The story told of him that he would take no student into his instruction who was not learned in geometry forms a parallel to Leonardo's requirement of an understanding of mathematics on the part of anyone attempting to learn from his writings. And further, Leonardo insisted that nothing can pretend to be science that does not proceed mathematically. But as we have pointed out before, Leonardo's ideal was the distinctly modern one of uniting the two forms of knowledge, the mathematical and the experimental. Plato attempted nothing of this kind.

Plato's teaching that art is inferior in every way to nature, that it is nothing but imitation and instead of adding anything to its model lacks the valuable qualities of it, would not find the least favor with Leonardo. Also his pragmatic judgment of art we have found unrelated to Leonardo. Harmony is indispensable to beauty, according to Plato. But the harmony he demanded is purely formal, just as the geometrical figure was for him the attainment of absolute beauty. Harmony of sentiment and the expression of life and character, which were very important to Leonardo and the Renaissance, did not concern Plato. There is a little more relationship between Leonardo and the Neo-Platonists in art theories. Plotinus holds that art does not simply imitate things that present themselves to the sight, but that it also creates things out of itself. He rejects the moralistic purpose

of art, and values it for its beauty. And this beauty is not a purely formal one, as with Plato; it includes expression and charm.

Leonardo was probably subjected more to Aristotelian influence than Platonic in Milan. And there are several theories of art in parts of Aristotle's Poetics that foreshadow Leonardo's. Imitation in art seems to have much the same meaning for the two. In Aristotle it implies not the niggardly copy of nature which results in something poorer than nature, as it implies for Plato, and it has not the mystical connection that we find in Plotinus. It includes creation and imagination on the part of the artist, who surpasses nature. The task of art, according to some of Aristotle's statements, is to represent the universal, the typical. And the purpose is not, as with Plato, merely the promotion of moral ideals, but rather the production of emotional enjoyment through the representation of the beautiful.

When Aristotle declares that poetry is not a metrical version of the facts of medicine, natural science, or history, we are reminded of Leonardo's opposition to the poet who borrows from the various sciences. We have already noted the dependence of Leonardo upon Aristotle in his theory of cognition.

Leonardo refers to passages in the works of Euclid,

1. Whittaker: The Neo-Platonists, p.86 ff; Bosanquet: op.cit., pp. 113-114. 2. Münz (op.cit.p.311) says that Aristotle was the god of Milanese scholars, as Plato was of the Florentines. Ueberweg-Heinze (Grundriss der Geschichte der Philosophie, v.III, p.5) explains that Averroism was important in northern Italy at this time. It was especially dominant at Padua. 3. Aristotle: Poetics, IX, 3; Butcher: Aristotle's Theory of Poetry and Fine Art, pp.158-160. 4. Aristotle: op.cit. IX, 3. 5. Butcher: op.cit. pp.197, 201. 6. Aristotle: op.cit. I, 11; IX, 1-2. 7. Par. XXV, 1. 8. See above, p. 12, note 1.
Archimedes, and Vitruvius. We can understand that he would have been much interested in the mathematics of Euclid and in the physical science of Archimedes from his own emphasis of the importance of mathematics and his work in mechanics and hydrostatics. Vitruvius may have suggested some of the important theories of the Paragon. In De Architectura he speaks of the necessity of mathematics and of both theory and practice for art. He also insists upon the proportion of all parts in order that a beautiful whole may be obtained. Aside from these phases, Vitruvius' work does not concern the Paragon, since there is no discussion of architecture in this division of Leonardo's writings.

Leonardo also knew Pliny's Naturalis Historia and refers to it by book and chapter. There are several points in Pliny's sections on art that may have served as suggestions to Leonardo. He says that painting confers immortality upon those it represents, and that mathematics (geometry and arithmetic) has been considered by some artists to be necessary for painting. He also tells stories of paintings deceiving men and animals. And the story he tells of a young man inspired with insane love for Praxiteles' Chidian Venus is a prototype of Leonardo's story of a similar case in connection with a painting of a divinity.

Leaving aside the detailed parallels in classical writings with theories in the Paragon, Cicero represents an intellectual attitude that was extremely influential upon the
Renaissance and upon Leonardo in particular. This influence was one that made for the assertion of independent individuality and a thorough distrust of all authority as such. Consider Cicero's characterization of the orator, the man of self-sufficiency. The wide range of knowledge that Cicero considers necessary for this character represents an attitude that was very powerful among early Renaissance scholars in general. And it is the exact ideal that we find personified in Leonardo. Cicero would have nothing taken on authority. While the Renaissance adopted this general sceptical attitude, it did not go to the extent that Cicero went in his theory that probability is as near as one can come to the truth. The reason for this is, perhaps, that the Renaissance was in the midst of a development of an experimental science the results of which were believed infallible. Through this the probability of the Academics was changed to a certainty by the Renaissance.

In Leonardo we find both of these principles strongly emphasized - distrust of authority and reliance upon the results of experiment. These traits were developed to such an extent in him that he very probably did not recognize that a good deal of their development, as well as other ideas, was due to external influences.

We have already seen how very important were the consequences for Leonardo of this scepticism which leads to

1. Cicero was widely read and respected in this period; see Burckhardt: op. cit. p. 253. The only direct reference to Cicero that we can cite in Leonardo's manuscripts is to De Divinatione, I, xix, 36; see Richter: op. cit. p. 915.
2. Cicero: De Oratore.
4. In De Divinatione, Lib. I, he proves that the belief in divination is unfounded in spite of the authority presented in Lib. I.
5. Cicero: De Officiis, II, II, 7; De Natura Deorum, III, XL, 95.
6. Par. VI, 13.
7. This helps explain his failure to make citations and also his statements made in opposition to authority.
personal investigation. It was of more decisive importance in his whole life work than all the more detailed influences made upon him by works from which he drew for his special theories and practices. Certainly, it was of more importance than these in the actual advances that he made.

An external legacy of Cicero to the Renaissance was the form of dialogue in which some of his writings appear. The characteristic dialogues of Plato approach much more closely to conversations. And there was always a principal speaker, while others in the conversation said only enough to give him opportunity to express his views. But Cicero's form is much more of the character of a formal debate. Representatives of opposing sides of propositions present their arguments with supposed impartiality on the part of the author, Cicero; although the side that he favors can always be clearly distinguished. Leonardo's Paragon shows this general character of debate, but it is less formal and more spirited, with more prejudice and partiality evinced by the writer.

1. See above, pp. 5, 8.
2. E.g., De Natura Deorum, De Divinatione, De Oratore.
3. Cicero was an eclectic in his art theories, so he gives us in these nothing different from theories of the Greeks, according to Bosanquet (op. cit. p.103).
B. Leonardo's Immediate Predecessors in the Theory of Art

No essential influence could have been exercised upon Leonardo by mediaeval writings. The predominant spirit of the middle ages, that of superstition and strict dependence upon authority, was diametrically opposed to Leonardo's empiricism and individualism. So we can, with little loss, pass from antiquity directly to within a century of Leonardo in our search for his predecessors.

1. Cennino Cennini

The beginning, although it is only in faint suggestions here and there, of such a treatise on painting as Leonardo's is found in "The Book of the Art" of Cennino Cennini. This book, written in the late fourteenth or early fifteenth century, represents a meeting of the old and the new. In the old Byzantine manner Cennini bases his work upon the authority of the masters. "But do follow the method of coloring which I shall point out to you," he says, "because Giotto, the great master, followed it. He had Taddeo Gaddi, the Florentine, for his master for four and twenty years, who was his godson. Taddeo had Agnolo, his son; Agnolo had me for twenty years, whereby I gained this manner of coloring." He continually emphasizes the necessity of a painter's following

4. op. cit. chap. 67.
a master closely. But, on the other hand, the very fact that it was in the following of the master Giotto that Cennini was an obedient pupil would lead us to expect something new and original. For, however much Giotto may have founded his style upon classic tradition, it is upon the new life that he gave to it that his fame rests. And Cennini does not entirely disappoint us. Though such passages are few, we find in his treatise suggestions of the necessity of originality on the part of the artist and of the importance of nature as a model. The subject of one chapter is, "How more than from the masters you should draw continually from nature: Remember that the most perfect guide that you can have and the best course (helm) is the triumphal gateway of drawing from nature—". That Cennini believes in the inventive power of the artist is made clear in the following passage: "For painting we must be endowed with both imagination (fantasia) and skill in the hand to discover unseen things concealed beneath the obscurity of natural objects and to arrest them with the hand, presenting to the sight that which did not before appear to exist. And well does it deserve to be placed in the rank next to science and to be crowned by poetry; for this reason, that the poet, by the help of science, becomes worthy and free and able to compose and bind together, or not, at pleasure. So to the painter liberty is given to compose a figure either upright or sitting, or half man, half horse, as he pleases, according to his fancy."

We find here and in the next quotation a beginning

of the comparison of painting and science, which is developed by Leonardo. Cennini does not, like Leonardo, rank painting as a science; but he places it next to and derives it from science: "Afterwards he (man) carried on many necessary arts---. Now the most worthy is science, after which comes an art derived from science and dependent on the operations of the hand, and this is called painting." In the quotation given above from this same chapter we have also a suggestion of a comparison of painting with poetry. Here Cennini, as Leonardo, credits the painter with as much invention as the poet.

There is a great deal of emphasis in Cennini's treatise on the importance of light and shade in painting. If the light and shade were not good, he says, "your work would be without relief, a foolish thing, without mastery." It is not strange that we find such interest in a follower of the great master of tactile values. But it does suggest that Leonardo in his emphasis of and mastery in light and shade had worthy predecessors.

Cennini recognizes the pleasure and delight of the painter, which Leonardo has so much to say. He several times speaks of the advisability of working in such a manner as not to become "vexed and weary," and advises the painter to "attend closely and with great diligence, delight, and pleasure to these studies." Finally, he says, "You must know that painting

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1. Par. I ff. 2. Op. cit. chap. 1. It is unlikely that Cennini had any conception of modern science, as Leonardo had. Cennini:


Cennini:

5. Op. cit. chap. 32; see also 8.
on panels is the proper employment of a gentleman and that, with velvet on his back, he may do what he pleases."

Most of Cennini's book is, indeed, a practical manual of technique. But there are, as we have seen, beginnings of theoretical studies from which Leonardo may well have obtained some suggestions. He would not necessarily have had to get the suggestions directly from Cennini. They may have come through later writers, such as Alberti. However, it is not unlikely that he was familiar with Cennini's book from the very fact that it is full of technical recipes in which Leonardo was an investigator and experimenter.

2. **Leone Battista Alberti**

Alberti, with his treatise on painting in the second quarter of the fifteenth century, is the first to break away from the old way of looking at art, still held in large measure, as we have seen, by Cennini. His ideal is the free creative artist, not the closely imitative follower of the master. This is clearly expressed in his letter to Filippo di Ser Brunellesco:

"Our fame must be greater when we without teacher and without example invent arts and sciences of which one has seen and heard nothing before." The diversity of Alberti's genius reminds one at once of Leonardo. But we shall confine ourselves to that phase which relates him particularly to our present subject.

Janitschek (publisher of Alberti's writings) is quite right when he says that some of Leonardo's paragraphs in his writings on painting give the impression of being excerpts from Alberti, though he goes too far, as we shall see, when he says that Leonardo in nearly all his aesthetic requirements appears dependent upon Alberti.

It seems very probable that Leonardo may have got his notion of the mathematical basis of painting from Alberti, for the latter also begins his treatise on painting with a consideration of mathematics. He does not use this discussion,

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2. Alberti: *op.cit.* p.49: "--ma quinci tanto piú el nostro nome piú debba essere maggiore, se noi senza preceptori, senza exemplo alchuno troviamo arti et scientie non udite et mai vedute."
however, as Leonardo does, with the avowed purpose of characteriz-
ing painting as a science. He declares himself to be of the opinion of Pamphilos in that the latter taught that no painter could paint correctly if he were not learned in geometry. He continues: "My fundamental principles (dirozzamenti) in which the nature of painting is completely represented will be understood easily by a geometry scholar; but anyone who knows nothing of geometry will not understand these or any other account of painting." In the same way Leonardo, while he insists that painting is a science, says: "No human investigation can be called true science if it does not proceed by mathematical demonstrations." Again he says: "Let no one who is not a mathematician read the elements of my work." Like Leonardo, Alberti describes the point, line, and surface; but his definitions are not so consistent and clear as those of the later writer. "The point is a sign (segnio) which cannot be divided into parts." But, "I call a sign that which is always found on a surface so that the eye can see it. Of things that we cannot see no one will believe that they have any relation to painting. The painter studies to represent only that which is seen." According to Leonardo's definition of the point it cannot be seen; it is purely mathematical and has only a mathematical, theoretical relation to painting. These same remarks apply to the two definitions of the line. For again Alberti says: "When points are arranged in a certain order in a row, they form a line---. When several lines like threads in

linnen are put together, they form a surface." His further definition of the surface, "the exterior part of the body, which has only length and breadth, but no third dimension," coincides in meaning with Leonardo's.

Both treat also of the mathematical character of painting in theories of sight and perspective, but Leonardo in a much more adequate and complete manner than Alberti. The latter bases his theory, according to his own statement, on the judgment of the philosophers. According to his theory visual rays extend from the eye to the surface of the seen object, forming a pyramid whose base is the surface and whose apex is in the eye. "And we may imagine the rays to be very fine threads, tightly bound together in a bundle in a point within the eye, where the sense of sight is located. Out of that knot or point as the stem of all rays its very fine branches spread out in straight lines over the opposite surface... One cannot see any dimension without a triangle, the angles of the base of which are formed by the two end points of the dimension, and the third angle is opposite them in the interior of the eye. The more acute the eye angle, the smaller will the distance appear... According to the distance, the dimension will appear larger or smaller..."

This naive theory of the rays going out from the eye, measuring the size, light, and color of the seen object, which measuring they carry back to the seat of the sense of sight was, according to Janitschek, generally held until the seventeenth century.

But certainly it underwent quite an important change with

1. Alberti: op.cit. p.52. 2. Alberti: op.cit. p.57. He may have obtained suggestions from Democritus, Diogenes of Apollonia, Plato, and Euclid. (See Beare: op.cit. p.22 ff.) Alberti had a good knowledge of the classics (see above p.53, note 3); this may be one reason why he depends more than Leonardo upon them. 3. Alberti: op.cit. p.57-61. 4. Alberti: op.cit. p.viii.
Leonardo. He cannot be satisfied with accepting the theory of the ancients; he investigates the subject experimentally and arrives at a different conclusion. For example, he tells of the transmission of the images of various bodies through a perforation and their reproduction in inverted form on the surface opposite. Again, he makes the experiment of placing two mirrors exactly facing each other so that "the first will be reflected in the second and the second in the first---; the first being reflected in the second takes to it the image of itself with all the images represented in it, among which is the image of the second mirror, and so, image within image, they go on infinitely in such a manner that each mirror has within it a mirror, each smaller than the last." From these and similar experiments Leonardo concludes that the visual rays of the sight pyramid are projected from the seen surfaces rather than from the eye, that "the plane surface has its whole image everywhere in the plane surface that stands opposite it." Leonardo does not, like Alberti, consider, aside from the sight pyramids, the sight triangles, which, according to Alberti, record dimensions. Perhaps it is because Leonardo thinks of the true line, as well as of the true point, as invisible - only surfaces can be seen, and so we have only sight pyramids. Both Alberti and Leonardo treat of three branches of perspective, although Leonardo classifies them more distinctly than his predecessor. They deal with diminishing size of forms, diminishing distinctness of contours, and diminishing distinctness of colors.

But as to the main body of Leonardo's Paragon, the debate concerning the comparative virtues of the arts, the

1. Par. III, 17.
2. Richter: op. cit. # 65. 3. Par. II, 50.
4. Alberti: op. cit. p. 57; Par. IV, 5.
author could have got scarcely a hint from Alberti. Wolff says that Alberti judged more justly between painting and poetry than did Leonardo. But this is hardly a fair statement; because, in the first place, there is really only a faint suggestion of a comparison of these two arts in Alberti and then it is more exactly a comparison of painting with descriptive writing in general. In the second place, what is said does not place poetry any higher in relation to painting than Leonardo places it. True, Alberti advises artists to study with poets and orators, because "they have much in common with the painter" and can help him in his invention. But, though Leonardo does not mention such practice, we should not expect him to object to it, since, as we shall see, he considered historical pictures of much worth, and they would usually be made from descriptions of others. But he does contend that the painter as well as the poet has inventive power. Alberti goes on to prove his point by calling attention to the fact that without painting a beautiful description pleases by itself, and he tells how pleasing is Lucian's account of Apelles' Calumny. But - "If the description of this picture pleases, think what pleasure and charm might be had from a view of the painting by Apelles!"

The only two arts that Alberti actually compares are painting and sculpture, and that is only in a casual way. Here again, Wolff's criticism that Alberti judged more justly

1. Wolff: Leonardo da Vinci als Aesthetiker,
3. Par. XXIX, 26.
4. Alberti: op.cit. p.145-7: "Quale istoria, se mentre che si recita, piace, pensa quanto essa avesse gratia et amenità ad vederla dipinta di mano d'Apelles!"
than Leonardo cannot be sustained. The only reason for such a statement is that Alberti hardly enters into the discussion at all. And as for the explanation Wolff offers for Alberti's better judgment, namely, that Alberti wrote a careful treatise on sculpture as well as on painting, it is true that Leonardo did not write as much on sculpture, but what is a better qualification, he did practice the art. We know that he was a master in sculpture, and for this reason it would seem that he would have been able, as he says, to judge between the two arts. In this comparison Alberti, as Leonardo, gives the palm to painting. "Trimegisto, a very ancient writer, judged that painting and sculpture were born at the same time as religion. But who can gainsay that it is painting that in all public and private, profane and religious things takes for itself the most honored part, so that it seems to me that there is nothing valued as it by mortals." "Certainly", he continues, "both these arts are intimately related, and painting and sculpture are nourished by the same genius. But I always put the genius of the painter first, because it works at more difficult things." He does not, however go into the enumeration and discussion of these "difficult things", as Leonardo does. Alberti also recognizes the mental work in painting; he considers painting "fully worthy of the free and noble mind." But he does not contrast it with sculpture in this respect. He does suggest, however, that the relief of painting requires more skill than sculpture when he says: "Relief is found much more easily in sculpture than in painting."

1. Wolff: op.cit.
2. Par. XXXV, 15.
5. Par. XXXIV, 22 ff.
For the vivid description of the pleasant work of the painter in his studio, which Leonardo uses to contrast with the physically fatiguing, noisy, unpleasant life of the sculptor, we find a faint parallel in Alberti's short discussion of the pleasures of the painter: "As for myself, I have always considered it the best sign of a splendid mind when anyone busies himself with painting with joy and patience... The learned as well as the unlearned enjoy it; there is no other art that the scholarly and unscholarly of every age so willingly trouble themselves to learn and practice... and seldom will you find anyone who does not inwardly wish to be competent in painting... If I may be allowed to speak for myself, when I want pleasure, I go to my painting, where not infrequently I first find leisure after my strenuous work... I go at the work with such pleasure that I am often surprised to have used up three or four hours at it." But again, he is not contrasting the painter with the sculptor or with any other particular artist. His praise of painting is made rather with the purpose of justifying his detailed discussions of his theories of painting.

Alberti speaks of painting as divine, as Leonardo so often does, also of its power to preserve the images of those long dead, of the wonder and desire that such images induce in those who see them, and of the devotion which painting promotes by the representation of gods. Alberti, too, finds the origin of

1.Far. XI, 6. 2. Alberti: op.cit. p.97. 3. Alberti: op.cit. p.89: "Ma perché questo imparare ad i giovani può parere cosa faticosa parmi qui da dimostrare quanto la pittura sia non indegna da chonsumarci ogni nostra opera et studio" 4. Alberti: op.cit. p.89: "Tiene in sè la pittura forza divina non solo quanto si dice dell' amicitia quale fa li huomini assenti essere presenti ma più i morti dopo molti secoli essere quasi vivi, tale che con molta admiratione del artefice et con molta volupta si riconoscono... Et così certo il viso di chi gia sia morto per la pittura vive lunga vita. Et che la pittura tenga
the other arts in painting. The universal appeal of painting, that
Leonardo makes a great deal of, Alberti brings out in two or three
statements of this nature: "It impresses scholars as well as
laymen. It is pleasing to the educated and uneducated." One phase
that Alberti emphasizes in the praise of painting Leonardo does
not touch upon at all. Alberti says: "Well-finished, historical
pictures merit a decoration of most precious stones." To Leonardo,
the purely artistic painter, we should expect the use of actual
jewels in painting to be repulsive, just as we now associate such
practice with decadent art. Alberti says in the same passage that
there is more praise due the artist who imitates the reflex light
of gold with his colors than to one who uses the actual gold. But
the reason he gives for this, namely, that "gold backgrounds
often spoil the effects of other colors", shows that he does
not object to the gold in itself.

Both Alberti and Leonardo are advocates of the

expressi li idij quali siano adorati dalle genti, questo
certo fu sempre grandissimo dono ai mortali, pero che la
pictura molto così giova ad quella pietra per quale siamo
congiunti alli idij insieme et a tenere li animi nostri pieni
di religione.---Zeuxis pictore cominciava a donare le sue
cose quali come diceva non si poteano comprare. Ne exstimaeva
costui potersi venire atto pregio quale satisfacesse ad chi
fingendo dipingniendo animali se porgiesse quasi uno iddio."

1. Alberti: _op. cit._ p.91: "Et chi dubita qui appresso la pictura
essere maestra o certo non picciolo hornamento a tutte le
chose? Prese l' arxchitetto, se io non erro, pure dal pictore
li architravi, le base, i chapitelli, le colonne, frontispiciij,
et simili tutte altre cose; et con regola et arte del pictore
tutti i fabri, i scultori, ogni bottega et ogni arte si regge.
Né forse troverai arte alcuna non vilissima la quale non
raguardi la pictura tale che qualunque truovi bellezza nelle
cose quella può dire nata dalla pictura." Cf. with this
Par. XXX, 4 ff.

2. Alberti: _op. cit._ p.97. Cf. with this Par.XX, 13;XXVI,4;

3. Alberti: _op. cit._ p.139.
Renaissance view that true art is an imitation of nature. And further, they are true to that view in that they do not consider imitation in the sense of a niggardly copy. Irene Behn says that Alberti in holding that the artist does not need to be a slave to nature was at variance with the Renaissance. The art writings, however, and the art itself of the most important artists of the period disprove this. When Behn says further that Leonardo believes in the pure imitation of nature in contrast to Alberti, it is quite evident that she has taken the term "imitation" as it is used by these writers of the Renaissance, in some cases, at least, in a too literal sense. Alberti escapes the application of her strict meaning. And yet it is to Alberti himself that Landsberger goes for an illustration of the use of the word "imitation" in such a way as easily to give the impression that it is used in the strict modern sense. Landsberger refers to Alberti's designation of Narcissus, who saw his image mirrored in the water, as the inventor of painting: "For", says Alberti, "can one say that painting is anything but the attempt to get artificially an image like that which looked out of the mirror of the spring there?" But other passages in Alberti leave room for the creative power of the artist. At one time he says: "Out of the mind the invention, out of experience the ability of forming, out of the critique the choice, out of the directing thoughts the composition. In this order proceeds the artist."

Both Alberti and Leonardo, then, recognize the free, inventive powers of the artist. The painter must understand

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nature and make all his work so that it will not do violence to natural forms; but he must also select and arrange with a view to composing work that will be beautiful and expressive. Alberti says: "It is not enough that one merely make all the members similar to the model; one must give them beauty; for in painting beauty is not merely pleasing, but is demanded (richiesta). The ancient painter, Demetrius, did not win the highest praise because he was more intent upon making things similar to nature than beautiful." Leonardo emphasizes the necessity of expression more than that of beauty. The artist's creative genius is called into play above all in the matter of deciding what forms, movements, lights, shades, and colors are appropriate to the subject he represents. This is especially important in composing historical pictures, which Leonardo considers a high form of art, and Alberti the very highest.

There is one case of Alberti's understanding of "imitation" for which we can find nothing but the direct opposite in Leonardo, a case in which Alberti goes far in advocating the exact copying of nature. He recommends to painters the continued use of a thin veil of tissue (velo sotilissimo tessuto raro), divided by lines into parallelograms and placed between the object and the eye. Where this veil cuts the sight pyramid, the eye may see where each part of the image cuts through the sections of the veil. Then on the wall or panel, divided also into parallelograms, correct drawing is more easily done. "I would not listen to those who say it is little suitable for the painter to use such things, which although they are of much aid in painting, yet are so constructed that afterward one can do nothing without them. In my opinion, one does not demand from the painter endless work.

but rather, with justice, that the painted thing project from the surface similar to the model—a demand that I do not know how to satisfy without the help of the veil." Leonardo would consider that painting had lost a great deal of its theoretical quality, on which much of its superiority to the other arts rests, if it were dependent upon such mechanical devices as this. Such practice would amount to the same thing as the sculptor's manner of determining the contours and forms of his figures by the use of his measuring instruments, which process Leonardo finds very mechanical and inartistic, and therefore depreciatory to sculpture. And the fact that the veil incapacitates the artist for ever doing anything well without it does, in his estimation, make a great deal of difference. A reason he gives for this is one which, if Alberti had thought of it, would surely have led him also to condemn the habitual use of the device. Leonardo says that those who follow such practice "are always poor and wretched in their invention or composition of histories." And, as has been pointed out above, Alberti valued historical compositions above all others for painting. True, Leonardo does not condemn the use of the veil unreservedly; but he would not have it crowd out the artist's inventive powers.

We have noted that Alberti's principal reason for urging the use of the veil was that only with it did he know how to obtain the projection of the painted thing from the surface, which characteristic he says is the one demanded of the painter. Leonardo also says that "the principal artifice of the painter is that his painting appears in relief," that it "appears loosened

1. Alberti: op. cit. p.103.
2. Par. XXXV, 3; XL, 26 ff.
3. Par. XLIV, 5.
4. Par. XLIII, 24.
from the wall or other plane and deceives subtle judgements."
But to gain this the good painter does not need any mecha-
nical device; he gets it by the application of his scientific
knowledge of light and shade and perspective. Light and
shade are especially important. Leonardo seems to feel that
their importance cannot be emphasized too much. By means of
light and shade expressions of faces are represented, figures
are made to project from the wall, colors are made to appear
more or less in their pure hue. A large part of the so-called
Book on Painting is devoted to an exhaustive study of light
and shade, and in his actual paintings that are left to us
we find even greater care, if possible, given to the study.
Alberti too, in spite of his recommending the use of the
veil, recognizes much importance in light and shade. The
difference is that he would have the artist copy it directly
from nature always, without making a scientific study of it.

Another reason that Alberti gives for the use of
his veil is that it helps, by allowing one to imitate nature
more closely, in obtaining a pleasing harmony of the surfaces
of bodies in lights and shades and proportions. It is such
composition, he says, that results in beauty. He emphasizes
the necessity of proportion in every part of the composition,
in the members of the bodies and their colors, in the size
of the figures in their relation to one another, and the
buildings and other accessories. It is of especial importance

1. Par. XXXVI, 5. 2. Par. XXXVI, 8; XXXVII, 23.
3. Alberti: op. cit. p.133: "---il lume et l'ombra fanno parere
le cose rilevate." p.137: "Placerebbero appresso de' pittori
il bianco si vendesse più che le pretiosissime gemme caro.
--- sarebbero loro opera più al vero dolci et vettosi."
that everything in the picture should be in keeping with its purpose, i.e., with the subject. Thus, he says: "In the dead every member should be dead to the finger tips; in the living every particle should show life. The action of the figures, the movements of the draperies, and also the emotional movements must harmonize with the whole. "These emotional movements are recognized, however, only by the bodily movements: so it is necessary for the painter to know all bodily movements." "A historical picture will move the feeling (animo) when strong emotional movement is expressed in the figures represented. For according to nature we weep with the weeping, and laugh with those who laugh." For, as for Alberti, the mental states are expressed by bodily movements.

Naturally, in the Paragon it is not so much how the harmony is to be obtained that interests Leonardo (although that does come in incidentally), but rather that a perfect harmony is possible in painting. He compares it with the harmonies of music and uses it as a very important factor in fixing the superiority of painting to poetry. Alberti, with reference to architecture, compares the harmony of his art with the harmony of music. "The same numbers through the relation of which the harmony of voices sounds pleasing in the ears of man fill also the eye and the soul with rare pleasure. So I shall borrow then the law of the outline from the musician, to whom these numbers are well known, and out of them keep those relationships whose quality is suitable and

valuable." This is used by Alberti with especial reference to architecture, but it closely resembles some of Leonardo's comparisons.

Although many of the requirements made of painting by these two writers are very similar, the final purpose of art for the two is different. Behn, in her study of Alberti, concludes, it seems to me, rightly, that Alberti did not seek the end of art outside itself, but rather in its own beauty. With Leonardo the emphasis is much more upon expression. He requires significance and meaning in a painting at all costs. He does not in the least object to the use of ugly figures if they help in the expression of the subject. Indeed, he says they ought to be used for the purpose of contrast with the beautiful (il brutto uiccino al bello).

If we should include all of Leonardo's extant writings in this comparison, we should find that he, far more than Alberti, developed the technical, practical side of painting. But considering him from only the standpoint of his theoretical writing, in which he is represented very adequately in the Paragon, there is much that is new and shows no dependence upon Alberti. Aside from the corrections he made on Alberti's work, Leonardo treated many new branches. Especially, he gives extensive proof for the placing of painting among the sciences: he goes into a lengthy praise of the eye, in which much is made of the

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1. d. re aed. IX, chap. 5, p.137; cf. Par. XVIII, 13; XXXII, 8.
beauty of nature; and then he gives us something unique in his classification of the arts of painting, poetry, music, and sculpture.

One recognizes that the real purpose of Alberti's as well as of Leonardo's writing is to lift painting to a higher level, to take the painter out from among the common craftsmen and to replace him among honored creative artists and scientists. This meaning is more evident and conscious in Leonardo's work than in Alberti's. The artist had held such an honorable position in antiquity, but in the middle ages he had sunk to such a level that he was considered as no more than a decorator; he was not looked upon as an individual creator, very seldom was even his name remembered or recorded. That same tendency to suppress individuality was still in Cennini, as we noted in the beginning of this discussion. But, because of and also in spite of all the exertions to "imitation of nature", individuality was of great importance in Alberti and of all-importance in Leonardo. The last paragraph of Alberti's treatise on painting seems almost like a prophecy of Leonardo: "I know that my treatment of the subject is incomplete; but one finds no art or science whose beginning does not have mistakes; never does one find beginning and completion united. Who follows me will, I think, although he may perhaps surpass me in study and genius, make the art of painting absolute and perfect."  

him. We have seen many points of similarity between the two. Alberti's writings were very popular: Leonardo himself several times cites him on other subjects than those deal- strictly with painting, and it would be strange if he had not read his treatise on painting, which was completed in Florence in 1435. It would be especially strange in view of the similarities we have been considering, where Leonardo seems not averse to taking any suggestions that may be of service to him. But he never takes them blindly on the authority of their author; he investigates always for himself, and at times we have found him disagreeing completely with the construction put on propositions by Alberti—always he has at least analyzed and amplified them. Thus, correcting and broadening Alberti's work, he has come very near the ideal Alberti held for his successor—the making of the art of painting absolute and perfect.

1. Several of the writers we discuss cite him and otherwise show direct knowledge of his writings. See below pp. 69, 75, 97, 101, 105.
3. Antonio Averlino Filarete.

About a quarter of a century after Alberti wrote his book on painting, Filarete finished a treatise on architecture (1464). Although most of it has to do with a technical study of architecture, part of it deals with the subject we are interested in - a theoretical discussion of painting. In most of this he shows the strong influence of Alberti, a familiarity with whose work is proved not only by internal evidence, but also by the citations of that author. Most of the points of likeness between Filarete and Leonardo we found between Alberti and Leonardo. So for Leonardo's immediate source in these things we should more reasonably go to Alberti than to Filarete, since the former was a far greater character than the latter, and also because Alberti treats of a great deal more that influenced Leonardo than Filarete carried into his discussion. But there are also some passages in Filarete for which there are no prototypes in Alberti, but which appear again with striking similarity in Leonardo.

In the praise of painting Filarete tells many of the same stories that are told by Alberti, of how it was valued in antiquity and only freemen were allowed to practice it, of how it makes an absent person present as if alive. Also he says, as does Leonardo, that there is no other art which has such power to represent nature as this. And when he concludes:

"Is it (painting) not seen to make in January, when there is snow, roses by such an artifice that they appear real, but..."

1. Filarete: Traktat über die Baukunst, Ed. von Oettingen.
2. Filarete: op. cit. p.627.
other flowers, and fruits of many kinds." We are reminded distinctly of Leonardo's description of how the painter in the cold and rigid time of winter presents to the spectator summer landscapes with meadows, and flowers, and the soft shade of green trees.

We have noted that Alberti finds the origin of all other arts in painting and that Leonardo followed him in this with the explanation that the dependence comes through perspective and especially drawing, which are parts of painting. Now Filarete says, "Everything that proceeds from handwork rests on the laws and nature of drawing." Undoubtedly this is the meaning of Alberti, though he does not clearly state it.

Filarete's treatment of the elements of drawing, the paint, line, and surface, and his theory of sight come directly from Alberti, as he himself admits. In the praise of perspective he expresses an idea which we find used by Leonardo in praise of painting through perspective: "You can contend, 'This way is false, for it shows an object where it does not exist', quite right; but for drawing it is correct, for in drawing it is everywhere a matter not of real objects, but of an image of the body which you will draw or represent. So this practice is for drawing true and perfect; without the same one can practice well neither painting nor sculpture." 

Filarete gives a short discussion of the precedence

1. Filarete: op.cit. p.627: "--come non si vede fare di Gennaio, quando è la neve, delle rose a uno maestro, che parranno proprio e d'altri fiori ancora, a frutti di più ragione."
of painting over sculpture. He says that the painter must have
knowledge of much more than forms, and light and shade, while
that suffices for the sculptor. Leonardo denies that even a
knowledge of light and shade is essential to the sculptor.
Nature, he says, attends to that for him, and his only concern
is for the forms. One argument of the sculptor which Leonardo
includes in his Paragon and makes a good deal of occurs here
for the first time. Filarete does not attempt to answer it, as
Leonardo does, but he only gives other virtues of painting to
counterbalance it. He has his opponent say: "It has appeared
to me that designing and sculpturing in marble, in bronze, or
in other material would be much more worthy (molto più degno)
than painting. Because when one cuts a figure from marble and
in working takes off a piece of the nose from the face or a
piece of any member, as anything might break off when a weight
falls upon it, how will one remedy that figure? But the painter
can cover over with colors and mend it, even if it is spoiled
a thousand times. And thus one who carves in concave (ch'entaglia
in cavo) either cornelian or other stone that which is necessary
(che cosa che bisogna) works with the mind! And on the other
hand painting is not thus." While Leonardo opposes this view
strenuously and tries to prove that painting requires much
more mental skill than sculpture, Filarete does not answer it.
He merely says that his opponent has spoken correctly, that
sculpture does require much skill, but that painting with its
colors deceives people more. Such stories as he tells of

1. Filarete: op. cit. p. 626.  2. Par. XXXIV, 22; XXXV, 5.
paintings deceiving people and animals do not occur in Alberti, but they do in Leonardo. They came originally from classic writings.

Filarete insists upon the harmony and proportion of the parts of drawing, painting, and sculpture, as Alberti and Leonardo do of the parts of painting.

He describes drawing with the net or veil, which Alberti described and recommended before him. And he also talks about the praise due the artist, "who is able to invent new and beautiful things, as Apelles did the Calumny."

Aside from these few suggestions in content that Leonardo may have got from Filarete, the form of his treatise also may have been influenced by this earlier one. For Filarete employs a debate form somewhat similar to Leonardo's; he has an opponent bring up arguments. But the opponent with him plays rather the part of the opponent in Plato's dialogues, while with Leonardo the form is more closely allied to the dialogues of Cicero.

1. E.G. Pliny, Hist. Nat. XXXV, 10(36), 65,95.

The fact that so much is said by classic writers, e.g. Lucian, about the fame of this picture accounts for its mention by all these writers, Alberti, Filarete, and Leonardo.

5. See above p. 48.
G. Leonardo's Influences upon Art Writers of the
Sixteenth Century.

1. Fra Luca Pacioli.

When we come to consider the treatise of Pacioli, who was a contemporary of Leonardo and closely associated with him at times, we are not surprised to find that he evidently influenced and was influenced by Leonardo. His treatise deals strictly with the mathematical principles of proportion, and very little else enters in. This mathematical treatment, however, shows some similarity to Leonardo's views on the subject. Like Leonardo he insists that "among the true things --- mathematics is the truest and most certain" and that "without its knowledge and presupposition it is not possible to know how to carry out any human thing (alcuna cosa fra le humane) well."

He says that Plato was right when he forbade any to enter his study who did not know geometry well, and he explains that Plato meant that on this all other sciences depended. Pacioli also discusses briefly the relation of the point, line, and surface to drawing. He makes the relation even clearer than

1. Pacioli: Divina Proportione.
2. The treatise was written the last of the fifteenth or first of the sixteenth century. It was published in Venice in 1509.
4. Pacioli: op.cit. p.34.
Leonardo had done. Although, these (point, line, and surface), he says, in their mathematical sense cannot in reality be represented visibly, we use them with reference to things that can be represented for the lack of significant words to express their concepts. Since Pacioli was a mathematician more especially than Leonardo, it would seem more likely that he influenced Leonardo in these views regarding mathematics than that Leonardo influenced him.

Pacioli also insists, as does Leonardo, upon the ranking of painting, or rather the phase of painting called perspective, among the mathematical sciences. (And it was by virtue of perspective, we remember, that Leonardo put painting among the sciences.) Generally, he says, scholars consider only arithmetic, geometry, astrology, and music as mathematical sciences. And he contends that either only the first three of these must be admitted or else perspective must be added as well as music. "If these say music satisfies hearing -- so perspective satisfies seeing, which is the worthier in so far as it is the first door of the mind." Here we have one of the most strongly emphasized arguments of Leonardo in his comparison of painting with both poetry and music. And in the following quotation we have another he used in his comparison of painting with music, when he said that he would make his rule of twenty in twenty braccia as the musician did with his voices. "If they say the former (music) observes the sound

2. See above p.6.
4. Par. XXXII, 8.
numbers and the necessary measure of its production in time, so the latter (perspective) observes the natural numbers (numero naturale), according to the same definition, and the measure of the visual lines. If the former produces harmonious relations, the latter produces arithmetical and geometrical." Pacioli shows that arguing here for perspective he means painting as well when he adds the following exclamation in the nature of a defence for his high ranking of perspective: "Who might not by the view of a beautiful form with its regular well-ordered lineaments, to which only breath seems lacking, hold the same for something divine than human! And painting imitates just as many things of nature as one can name, which is made evident to our sight in the previously mentioned picture of the Last Supper (that of Leonardo), in which it would not be possible to represent the apostles more lifelike with the sound of voice." All this, and not least, the calling of painting divine, sounds quite like Leonardo. We find also such stories told here of men and animals deceived by paintings as occur in Filarete and Leonardo. And Pacioli concludes that "it is no sensitive (gentil) spirit that painting does not please, since it allure both reasoning and unreasoning animals." Thus the universal enjoyment we find emphasized by Leonardo is again expressed here. All of this defence of painting and perspective Pacioli is giving support of his contention that if music is considered one of the principal sciences, perspective also must be so ranked."--through nothing does perspective seem to be inferior, since it is worthy of as much praise."

3. _Par._ XXVI, 4.
In the course of his treatise on architecture Pacioli, in a discussion of the proportions of the profile of the face, makes it clear that, like Leonardo, he does not consider art an exact copy of nature: "And these enumerated parts of the profile are completely rational (rationale) and known to us. But where the irrationality of the proportions comes in, that is, so that one can in no way describe them by a number, they remain left over to the worthy decision of the perspective-worker, who has to determine them according to his good judgment. For art imitates nature as far as is possible for it. But if it represented exactly that which nature makes, one would not call it art but another nature, totally like the first, which would indeed be it. This is said so that you shall not wonder at it when all things do not come completely alike from the hands of the creator, because it is not possible."

Because of the close association of Leonardo and Pacioli it is impossible to determine just how far each is responsible for originating the ideas we have found they hold in common. For, although the Paragon was probably written before the *Divina Proportione*, Leonardo would likely, as we have said above, have been personally influenced in his mathematical ideas by this master of mathematics. On the other hand, Pacioli was probably swayed by Leonardo in his opinion concerning more purely artistic questions, as those of the imitative and creative qualities of painting, its divinity, and its universality. Indeed the particular application of

mathematics to painting may have been originated in large part by Leonardo, while only the emphasis of the importance of mathematics in general came from Pacioli.

2. Albrecht Dürer.

In the comparison with Dürer, the second contemporary of Leonardo who offers himself for our consideration, it is more possible than we found in the comparison with Pacioli to determine the direction of the influences that have passed between the two, because they are of different nationalities and have naturally different attitudes toward the subjects that they consider.

For Dürer's theoretical views of painting we have to go to his writings on other subjects, such as measurement and proportion, and to his letters and notes. He planned to write a treatise on painting; for we have an introduction that he prepared for it in 1512. He also left what is apparently a plan for a comprehensive work on art in general.

In 1506 he went to Italy for a year's work. Most of this time was spent in Venice. But he also went to Bologna, as he tells us, "to learn the secrets of the art of perspective from a man who is willing to teach me." Ephrussi suggests that

1. Dürer; Briefe; Lange and Fuhtse: Dürer's Schriftlicher Nachlass; Conway: Dürer's Literary Remains.
3. Various speculations are made as to who was Dürer's teacher in Bologna. Thausing (Life of Dürer)-cited by Conway-and Conway (p.206) think it was probably Pacioli. But Panofsky(Dürer's Kunsthewie,p.23) says that at this time Pacioli was in Florence, and he thinks that the man must have been another pupil of Pietro della Francesca and one who was acquainted with the work of the Milanese school; for there is much similarity in his theory of perspective to Alberti's and especially Leonardo's.
when in October, 1506, Dürer went from Venice to Bologna he there met Leonardo, and Conway adds the observation that Leonardo was at that time passing leisurely from Florence to Milan and may have encountered Dürer at Bologna; for Julius II was holding his court there at that time.

Dürer complains in his letter to Pirkheimer that the books of the ancients on the art of painting have in the course of time been lost, that otherwise he might be able to know more. Again, in his introduction to his intended book on painting he says: "I hear moreover of no writer in later times by whom aught hath been written and made known which I might read for my improvement. For some hide their art in great secrecy [Is he thinking of Leonardo?] and others write about things whereof they know nothing." This second statement would lead us to believe that Dürer was not familiar with Leonardo's manuscripts, and certainly we should not expect a German with one year in Italy to do much reading in the peculiar reversed writing of Leonardo's Italian. Besides, it is unlikely that he had access to any of Leonardo's manuscripts. Dürer's statement would also exclude a knowledge of the works of Alberti and Pacioli. But whether or not he knew the writings of these masters, he became familiar with many of the ideas expressed in them as his work shows. The possibility, mentioned above, of personal contact with Leonardo and Pacioli suggests an explanation of some of their influence upon him. In the writings of Dürer after his visit to Italy we find a consideration of questions purely Italian, as of the beautiful, which to northerners was of less concern than useful. He

2. Dürer: Briefe, p.64.
recognizes the newness of his theoretical work in his country when he says in his introduction to the book on painting, "Some I know will be curious about these matters because they have neither seen nor heard of such things in our land before."

Like Leonardo, Dürer emphasizes the fact that painting serves sight, "the noblest sense of man." The clearest suggestion Dürer gives of a classification of the arts occurs in this connection: "Learned opinions and also daily experience teach us that the thing that comes through the hearing as a light air moves and attracts us less and more slowly than that which appeals to the sight. It follows from this that the art and practice of painting are not unnoticeable, and also that painting is not the lowest of the arts. For it not only appeals to the inner reason with force, but also to the senses—1 Dürer's treatment of the sight pyramid is like Alberti's; he holds that sight rays go out from the eye to the object. No less than with Leonardo perspective is with Dürer of unparalleled importance. He calls it the fundamental principle of all painting. A knowledge of proportion too is of vast importance, as he often reiterates, and as his book on proportion shows.

In the above mentioned sketch of the plan for the book on art Dürer gives an outline of a section to deal with the praise of painting. Points in this that remind us of Leonardo are those relating to the joy and delight that spring from painting, its usefulness in religion, and the fame it brings to those who practice it. In his introduction to his book on

painting he adds the praise that it preserves the likeness of men after their death, and that by means of drawing it aids topography and astronomy and many other things. Dürer is clear in his statements of the importance of mathematics (geometry) for painting but he also often warns the artist that he cannot depend entirely upon geometry.

His theory of the relationship between art and nature is far more like Leonardo's than like that of the north- erners. For though both Dürer and Leonardo emphasized the importance of nature for art, they escaped entirely the minute copyist spirit of the northerners. Like Leonardo, Dürer would have every work of art based upon nature: "I would warn each (artist) that he would make nothing impossible; that nature could not allow.\" "For if it is opposed to nature, it is bad."

But he is also like Leonardo when he says: "--for the imagination of a good painter is full of figures, and were it possible for him to live forever, he would always have from his inward 'ideas', whereof Plato speaks, something new to set forth by the work of his hand."

Like Alberti and Leonardo, and indeed the Italian Renaissance in general, Dürer considered beauty of great importance in art. But he also says: "use is a part of beauty; whatever therefore is useless unto men is without beauty."

Leonardo does not make this provision. For beauty harmony is

3. E.g. Jan van Eyck.
"Dann so es der Natur entgegen ist, so ist es bos"--."  
one of the first essentials. "The accord of one thing with another is beautiful; therefore want of harmony is not beautiful."  

As Panofsky (p.166 ff.) points out, Dürer's emphasis of the importance of theory or science in art, along with practice, is the most Italian characteristic of his whole writings. In the third book of the Proportion he tells us that understanding and practice must go together; "for one without the other is worth nothing." In another passage he says that the judgment of an artistic painter concerning a beautiful form is more credible than that given by people who merely take pleasure in beauty; for the artist can show the reason why one form is more beautiful than another. And -as concerns treatises on painting- it is to Leonardo that we go for the most perfect balance of the theoretical and the practical in art writings. So again we recognize a dependence of Dürer upon Leonardo.


Baldassare Castiglione, a third contemporary, wrote his Book of the Courtiers partly at Urbino and partly at Rome between 1508 and 1516, about a quarter of a century after the date we assign to the Paragon. It is valuable for our consideration for the similarity parts of it bear to Leonardo's work and especially for the light it throws on the court life of the time and the occasion for such discussions as the one Leonardo gives in the Paragon.

2. Lange and Fuhse: op.cit.p.230; cf. above , p.36.
5. Münz (Léonard de Vinci, p.101) suggests that Castiglione may have met Leonardo when the former was sent to Milan by his parents to finish his education.
Castiglione's book is written in the form of a social debate. He poses as the recorder of discussions that had taken place among the men and women at the court of Urbino as he had heard them from a faithful witness. Like all similar literary writers, Castiglione puts much more clever and brilliant ideas into the mouths of his characters than they could ever have had themselves. Speaking of the life at the court, he says: "The custom of the gentlemen of the house was to betake themselves straightway after supper to my Lady Duchess, where, among the other pleasant pastimes and music and dancing that continually were practiced, sometimes neat questions were proposed. Sometimes other discussions arose about different matters, or biting retorts passed back and forth." The discussions that Castiglione sketches are on the subject of the special qualities requisite in one who deserves the title of a perfect courtier. Poetry and music are not compared with each other nor with other arts. But it is decided that they are just requirements for the courtier, because they give him a finer culture, and music especially soothes the spirit of the listener and moves him to deeds of valor.

But when we come to the discussion of painting and sculpture we find a much closer parallel with Leonardo's Paragon. Castiglione has the count tell how painting was highly esteemed by the ancients, and how, aside from its being very worthy in itself, it is of great utility, especially in war for drawing maps showing the locations of points of interest. He considers

the true field of art the imitation of nature, and believes much praise is due one who can imitate things created by God. He calls both painting and sculpture divine; both, he says, spring from the same source, which is good design. But for various reasons that are quite similar to Leonardo's, he gives painting the palm over sculpture. Picture, he says, are indeed more divine than sculptures, because they are susceptible of greater skill. Like Leonardo he admits that sculpture is more enduring than the usual paintings, yet painting lasts a long time and is much superior in beauty and charm as long as it endures.

The argument of the impossibility of remedying mistakes in sculpture as opposed to the power to change painting as many times as one likes is made but not answered. Also we have the argument that sculpture produces imitations of nature in the round, as nature makes them, while in painting we see nothing but the surface and those colors that cheat the eye. This is answered as Leonardo answers it - painting makes its forms appear round and this requires more artifice than sculpture. Sculpture lacks light and shade, color, foreshortening, and perspective. Because of these the painter can represent many things not possible for the sculptor. Finally, painting gives much pleasure and power of appreciation of beauty to one who practices it.

All of these arguments are strikingly like Leonardo's. Not all of Leonardo's are given, by any means, and those that are given lack the earnestness and force of their original presentation. This may be accounted for in part at least by the fact that while

Leonardo writes as an artist, presenting the arguments that might have been made by artists in the various fields. Castiglione writes as a literary man, taking for his characters court people who had but little or no relation to art practice. He has undoubtedly got his arguments from artists, indirectly, we may well believe, from Leonardo. But not having the vital interest, and the artist's prejudice - which we must admit Leonardo had in some degree - his debate was able to follow the mild and somewhat superficial form that we find in the *Book of the Courtier*.
4. Benedetto Varchi

A very certain though indirect influence of Leonardo is found in the "Due Lezzone" of Benedetto Varchi written in Florence in 1546. Varchi does not appear to be familiar with the Paragon, but he gets the ideas of Leonardo through the painters and sculptors to whom he goes for most of the arguments that make up his lectures on the comparative nobility of sculpture and painting. We have seen that a characteristic of Leonardo's discussion and one that particularly distinguishes it from those that precede it is its argumentative form. The author gives the impression of recording the actual arguments and answers set forth by the defendants of each side. As for Varchi, he himself tells us in the early part of his treatise that aside from those with whom he has talked he has written to sculptors and painters in Florence to get their opinion on the question. At the end he reproduces eight of the letters he had received in answer. Most of the important arguments that are developed in his treatise concerning sculpture and painting may be found in these letters. And the ideas in these have their origin, we believe, in Leonardo.

But the whole spirit and execution of Varchi's work differ from Leonardo's because of the fact that Varchi was not, as Leonardo, relentlessly in favor of one of the arts. Varchi claims knowledge of one of the arts and some acquaintance with the others. But whenever his own opinions are allowed to show, he evinces very little inclination to place one art above another. And after quoting a number of the arguments on both sides, he

concludes: "I say then, proceeding philosophically, that I think, rather I hold for certain, that substantially sculpture and painting are one art only, and consequently one is as noble as the other. That is, the arts are known from their ends, and those arts which have the same end are one only and the same essentially, although in the accidents (accidenti) they are different. Now anyone confesses that not only the end is the same, an artificial imitation of nature, but besides, the beginning, design (disegno) ----. They have the same end, but are, however, much varied in the accidents. So it happens that any believing to prove the nobility of an art have proved now the difficulty, now the loveliness, now the permanence, and now some other accident, and these do not vary the substance ----. Besides, when one concedes all the reasons that are alleged by the painters, it would not follow that painting is more noble. And on the other hand, if there should be conceded to the sculptors all that they say, it would not follow that sculpture is more noble."

Like Leonardo, Varchi includes a consideration of science in the first part of his treatise. The comparison between the two here cannot be carried farther than as concerns the mere general subject; for the two writers treat it in altogether different manners. Leonardo attempts to prove that painting is a science. Varchi's aim is to show how all arts are, strictly speaking, distinct from and inferior to sciences. For the end of science, he says, is knowledge, while that of art is to do, to make. Further, "the arts are distinguished from the sciences in that they are separated one from the other

in such manner that one can be a good master in any of them without knowledge of any of the other arts, while the sciences have a certain conformity and alliance together, so that one can know none well without some knowledge, if not of all, at least of the greater part." For Leonardo the arts are much more intimately connected than Varchi holds. For example, all other arts depend upon drawing, which is a part of painting, and the painter must always understand sculpture. Another of Varchi's distinguishing marks between science and art is that science is necessary and art is not. But he does not hesitate to give the question of usefulness much weight in making his ordering of the arts, particularly of those that he considers first and places before painting and sculpture, that is, the arts of war, medicine, and architecture. In these he lets the decision rest almost entirely upon the question of usefulness. In his later discussion, that of painting and sculpture, where the arguments of his contemporaries assume, as we have said, the direction of his work, expression and beauty, which are of great account for Leonardo, take on much greater importance. As Varchi classes art as inferior to science, he acquiesces in the old exclusion of painting and sculpture from the liberal arts - a position to which Leonardo was radically opposed, particularly as regards painting.

From either Alberti or Leonardo Varchi may have got his theory that "no art is found that does not have its beginning from nature, either immediately or mediately."
He speaks of the arts as "inferior to and almost children of
nature." The second but not the first part of this statement
would meet with the approval of Leonardo.

When he comes to the real dispute concerning painting
and sculpture, Varchi gives the arguments of the painter, and
then the answers of the sculptor, the latter's added arguments,
and finally the painter's answer. The most important of these,
as we have said, are taken from the eight letters of sculptors
and painters that he reproduces; so instead of taking them up
in our immediate consideration of Varchi, we shall look at them
a little later in the sources from which he draws.

One division of Varchi's treatise deals with a com­
parison of painting and poetry. There is very little in this,
however, suggestive of Leonardo. Varchi considers the aim of
poetry as well as that of painting to be the imitation of nature,
poetry imitating with words and painting with colors. "And poets
imitate the interior principally, that is, the conceits and
passions of the mind, although many times they describe besides
and almost paint with words bodies and figures of things
animate as well as inanimate." But the painter, he says, cannot
express the differences in the thoughts and feelings of his
subjects, because he represents only exterior. "It appears that
there is such a difference between poetry and painting as between
spirit and body, although it is true that as poets describe the
exterior, so painters show as much as they can of the interior,
that is, the emotions, although they cannot express these so

2. Par. IX, 4.
easily". This, of course, is contrary to Leonardo's theory. Also, according to Varchi, the painter can do no better than imitate with his art what the poet gives in his poetry; for he thinks much of the great work of Michelangelo, both in painting and sculpture, is done from the study of Dante.

Like Leonardo, Varchi disapproves of poets writing as philosophers, physicists, and astrologers. But he says of Lucretius that although the material is from philosophy, it is treated, especially in certain places, so poetically that he can be called poet in these parts, as is seen in Dante, who in places treated the questions of theology, philosophy, and all other sciences.

The letters from eight painters and sculptors which Varchi reproduces at the end of his book, give us a brief outline of the arguments that prominent artists of the middle of the sixteenth century (these letters are dated 1546 and 1547) were ready to offer on the subject of the comparison of the arts. Most of these arguments, as we indicated above, are repeated in Varchi's discussion and can be traced to Leonardo.

The first of the letters is from Vasari, and we shall supplement it by parts of the longer discussion of the subject that he includes in the introduction to his Le Vite. Varchi gives here arguments offered by both sculptors and painters, which may be summarized as follows. The sculptors say that:

1. The creation of man was the first work in sculpture.
2. Sculpture has many more arts under it than has painting, as

bas-relief, works in clay, and stucco.

3. Sculpture lasts longer than painting.

4. The fact that there are fewer sculptors than painters indicates a necessity of greater skill on the part of sculptors.

5. Sculpture is much more difficult to work with; it fatigues the mind and all parts of the body.

6. Sculpture imitates the true form better than painting; it can be seen from all sides.

7. The sculptor must know every part of the figure he carves. There is no remedy for mistakes, as there is in painting.

The arguments as Vasari gives them are:

1. The creation of man was not an act of sculpturing, but rather of working in plastic art, considered by Praxiteles mother of sculpture. This makes sculpture niece of painting, since plastic art and painting arose together from drawing.

2. Painting has many more arts under it than sculpture, as the invention of histories, foreshortening, perspective, tempera, and fresco.

3. The permanence of sculpture does not make it more noble. It is simply a characteristic of the material; and mosaic has equal eternity.

4. The small number of sculptors is not due to the fact that sculpture requires more skill, but rather that it requires more money. And the expense is not due to the excellence of the art, but to the value of the material and the help and the long time the work requires.

4. Cf. Par. ALIV, 16.
5. Cf. Par. XXX, 7 ff.
6. Cf. Par. ALIV, 12.
5. The difficulty of sculpture does not add to its nobility. If physical fatigue were an indication of nobility, ordinary stone-cutting would be more noble than working in sculpture. Painting is more noble because it requires more mental fatigue, that is, it requires, besides that necessary for work in sculpture, knowledge of perspective, and the quality of forms in historical pictures, where more errors can arise than in a single statue. Also the painter must know how to represent transparent bodies and color.

6. The painter can show the spirit of life and emotions much better than the sculptor.

7. Whereas sculptors make actual relief, painters make it apparent, and often men and animals are deceived by painting, which does not happen in sculpture.

8. As to the impossibility of remedying mistakes in sculpture, mistakes in both sculpture and painting show poverty of genius and judgement. Besides, fresco painters have the same difficulties in this as sculptors.

9. Painting can make more things than sculpture, such as air and figures mirrored in the water.

After giving these arguments on the one side and on the other, Vasari in *Le Vite* takes a neutral stand, saying that the sculptors appear to him to have spoken too boldly and the painters with too much indignation. "I say that sculpture and painting are sisters, born of one father, which is design (disegno) and one does not precede the other --- by difference or degree of nobility." However, in the letter that he wrote in compliance

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1. Cf. Par. XXXVIII, 13; XXXIX, 21. Vasari is overlooking the fact that not only single statues are represented in sculpture, but groups also, as, e.g., Myron's Marsyas.
2. Cf. Par. XXXVI, 2; XXVI, 14.
3. Cf. Par. XLV, 16.
with Varchi's request he stands wholly in favor of painting, using, in fact, as his own some of the arguments given above as those of other painters. His attitude in the letter, then, is more in accordance with Leonardo's views.

Bronzino's letter to Varchi gives arguments of sculptors and painters that are closer parallels to those in the Paragon than the ones we have just been considering. However, he does not make his prejudice in favor of painting so obvious as does Leonardo. The arguments of the sculptor that he gives and has the painter answer with practically the same reasoning that Leonardo uses are, briefly, those concerning:

1. The permanence of sculpture.
2. The physical fatigue attendant upon working in sculpture (the answer to this, involving the question of mechanical qualities versus artistic is especially suggestive of Leonardo and is not made as often as many of the other arguments).
3. The possibility of remedying sculpture and painting. (Bronzino reminds us especially of Leonardo's statement that he is not concerned with "spoilers of marbles", but only masters when he says, "Those ought not to be considered who are born to revile either the one or the other art." He also makes Leonardo's point that the sculptor has a chance to remedy his mistakes in his model).
4. The comparative likeness to nature. (Here another argument introduced by Leonardo and not used frequently by others is given,

namely, the sculptor says his work is superior because one piece embraces infinite figures by virtue of its being visible from all sides. Leonardo's answer, however, is not given, nor is any other suggested. Bronzino has the painter argue that the actual relief of sculpture, making it subject to touch as well as sight, is not a virtue of the art, but is found already in the raw material of nature from which the sculpture is carved.  

5. Sculpture is more useful, as it can serve as columns, and similar things. (This is not mentioned by Leonardo, nor is it answered by Bronzino.)

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*Maestro Jacopo da Puntormo* is more outspoken than Bronzino in his favor of painting. He mentions most of the same arguments of the sculptor but dismisses them rather summarily. Indeed he does not even go into the painter's separate arguments in detail, but says at the beginning that only one principle, that of drawing, is fundamental; all others are weak in comparison. As for this, of course he means to show that it is essentially a characteristic of painting and consequently that painting is superior to sculpture. This also Leonardo does. Puntormo is very clever in the answer he gives to the argument of the sculptor we have found before, that when God created man, he made him in the

2. Varchi (op.cit. p.98) says that although this argument is made by an ingenious man and a good friend of his, it does not appear conclusive, because it is not true that which is found there of three dimensions is totally from nature, because although bodies have three dimensions necessarily, they do not have them in the same manner.
The painter, Jacopo answers, in this regard surpasses God and nature, because he can give apparent spirit and life to a figure in a plane surface—much more difficult than in the round. So, he says, God took the easier way.

Maestro Francesco Salm Gallo, again, tries to take a neutral stand with regard to the two arts. There is only a little evidence of the tipping of the balance toward the side of painting. Summing up the arguments for both sides, he says that sculpture surpasses any other art without comparison in its durability. Painting has the difficulty of producing lights, while sculpture has the difficulty of procuring and working the material. Painting has the trouble of foreshortening, and sculpture of making many views where the painter makes one. The painter makes a plane surface appear various things, and the sculptor cannot do what he does not appear to do, nor cancel his defects. Salm Gallo takes an original attitude toward these old propositions of the painter's being able to correct defects and of his representing the figure in only one view. In his estimation, far from being depreciatory characteristics of the art, these points are in its favor. He calls attention to the fact that they make the work much easier and more delightful for the artist. And besides, in respect to the representation of views, he points out that usually many views of a form are not pleasing, so the painter by choosing the most pleasing one can produce always the most beautiful result.

2. Cf. Par. XLV, 6.
5. Cf. Par. XXXVI, 8; ALV, 16.
In Maestro Tasso we have a representative of the champions of sculpture. He shows that he is familiar with the usual arguments of the sculptor when he mentions them separately and says that he will not discuss them. He lets the discussion rest upon the question of the imitation of nature, where he thinks sculpture easily takes the first place, because it gives the actual relief of nature, can be seen from all sides, and is apprehended by touch as well as by sight.

Maestro Tribolo, like Tasso, dismisses the usual arguments (this time without enumerating them, but just designating them as the difficulties of the two arts) and considers only the one of form. Sculpture, he says, unlike painting, shows the truth, and as nature, does not deceive. For this reason and because it can be appreciated by touch and so by even the blind, he considers sculpture superior to painting.

Benvenuto Cellini, too, takes the side of the sculpture and is more emphatic and radical than any of its other defenders.

5. Varchi (op. cit. p.98) sees justice in this reasoning, and his discussion of the senses of sight and touch in this connection makes an interesting comparison with Leonardo. Like Leonardo he calls sight "the most noble of all the five senses", but he says "it is not, however, the most certain, rather it is many times deceived, as any one knows and painters better than others; but the most certain sense is the touch, whence, who has lost touch has lost experience."
The fact that sculpture presents more views than painting is important with him. And the universal knowledge that Leonardo presents as a requirement for the painter, Cellini says is necessary for the sculptor. His arguments that "sculpture is the parent of all other arts at all connected with design", and that the sculptor can easily become a good painter, are Leonardo's arguments turned to the account of sculpture. And the distinction that Leonardo makes between poetry and painting Cellini makes between painting and sculpture: the difference between these two is as great as between shadow and substance.

Michelangelo Buonarroti, like Leonardo, worked in both sculpture and painting; but unlike Leonardo, he found greater satisfaction in sculpture. So he writes to Varchi that painting appears to him the better as it tends more toward relief, and that relief is the more wretched as it approaches painting. He speaks of sculpture as the lantern of painting and compares the differences between them to the difference between the sun and moon. The colossal, monumental character in which Michelangelo conceives his work and his exclusive prejudice for the human figure in art account in large measure for his favor of sculpture. He had no desire, as Leonardo had, to make painting the mirror of the whole visible world.

After showing his prejudice for sculpture Michelangelo expresses impatience with these disputes as to which of the arts is superior. He uses Varchi's reasoning to show that they are the same: both have the same end; both come from the same

intelligence; sculpture is made by taking off, painting by putting on; and difficulty, fatigue, and the like, do not enhance the value of an art. He complains that artists spend more time disputing the question than it takes to do their work. But he must have one last fling at the champions of painting, for he adds: "As to those who write that painting is more noble than sculpture, if they have thus well known the other things they have written, my manservant had better have written them."¹

5. Francisco de Hollanda

One who wrote on painting at about the same time as Varchi was a Portuguese, Francisco de Hollanda. Most of his ideas came from Italian sources, however, for painting held a much less exalted place in Spain and Portugal at this time than it held in Italy, and Hollanda's treatise was written about 1547-'49 after he had lived in Italy (most of the time probably in Rome) for some ten years. He was studying here with the ambitious aim of making of himself a painter, sculptor, and architect; so he would naturally come into contact with Italian theories of art. Joaquim de Vasconcellos, editor of Hollanda's treatise, says that it is in the "highest degree improbable" that Hollanda knew Leonardo's manuscript on painting, that he could have got all his Leonardesque views through Alberti. But this

¹. Lange (Studien über Leonardo da Vinci, p.10) considers this a direct reference to Leonardo, and such seems very probable, in view of Michelangelo's animosity toward that artist.

². Francisco de Hollanda: Vier Gespräche über die Malerei, ed. Vasconcellos.

³. Hollanda was the first native of Spain or Portugal to write a treatise on painting. (Vasconcellos: op.cit. p.xxvii.)


same critic calls attention to the fact that when Hollanda mentions Alberti it is to express his independence of him. However, this may be, there as we shall see, Leonardsque views in Hollanda's work that do not occur in Alberti's, nor in that of any of our other writers, except Leonardo, before Hollanda. And besides, I see no reason why it is "in the highest degree improbable" that Hollanda should have known Leonardo's work. He would not be likely to have read Leonardo's original manuscripts, but may he not have known the Vatican copy, which we believe was made soon after Leonardo's death? Indeed, the striking similarities between parts of Hollanda's work and parts of Leonardo's furnish another evidence of the early origin of the Vatican manuscript and even of its early existance in Rome. True, Hollanda disclaims the influence of others in what he writes, saying that he prefers to give his own thoughts, but his writing is proof against him. He represents the discussions of his dialogues as carried on between himself, Michelangelo, Lattanzio, and the Marchioness. That he does not present his characters correctly is shown by the words praising painting above sculpture, that he puts into Michelangelo's mouth. These are often quite opposed to theories that we know that artist to have held. The first dialogue deals principally with the virtues of painting. Like Leonardo, Hollanda considers all other arts and even the manual crafts and the characters of writing, dependent upon painting, while the genius for painting is God-given and its exercise

1. Hollanda: op. cit. p.cviii  
3. Hollanda: op.cit. p.ciii  
5. See the discussion of Michelangelo's letter to Varchi above p.76
brings the artist into close relationship with God. Also the use of the art in the promotion of religion through its power to arouse devotion is emphasized, and Leonardo's idea of the harmony of a painting being comparable to that of music is suggested.

In the remark "--- if one neither understands nor respects the noble art of painting, he himself is to blame, not the painting, which in itself is noble and distinguished" is a very close parallel to Leonardo's defence: "--- it enobles itself without the aid of tongues of others---. And if painters have not described it and placed it in science, it is not the fault of painting, and it is not for this reason less noble---". Hollanda also speaks of painting as a science, although he does not bring forward any proof for the classification. In his attention to such virtues of painting as its power to show us people long dead by the images it gives us and to show us the beauty of an unknown woman, Hollanda follows Leonardo.

In the second dialogue a brief comparison of painting and sculpture is made, and painting is given the first place as master of sculpture. Leonardo's idea that sculpturing is more easily learned than painting and that the painter can easily become a sculptor occurs in a passage ascribed to Michelangelo.

But the most striking parallels with Leonardo come in the comparison of painting with poetry. They are particularly noticeable because most of the Leonardesque arguments that Hollanda uses here have not been presented by others. That painting

4. Par. VIII, 16.
is superior to poetry is emphasized throughout this discussion.
Hollanda mentions the argument used by poets that painting is
"dumb poetry", but he contends that painting speaks more plainly
than poetry. "The former (poets) do not always satisfy the ears
with their frequently empty words, while the latter (painters)
satisfy the eyes, and all men are captivated by the beautiful
sight. The poets, he says, paint with words, but much less
satisfactorily than the painters with colors. As Leonardo
challenges the poet to describe a battle with such vividness as
the painter can represent it, and as he finds fault with poetry
because while part is being read that which has gone before is
forgot, while painting presents all at one time, Hollanda makes
the challenge, and the same criticism, using only the example of
a storm instead of a battle. The description he gives of the
effect of the painting of the conflagration upon the spectator
forms a striking parallel to Leonardo's account of how painting
serves the other senses through the eye. The more universal appeal
of painting is noted in this connection. Hollanda further explains
that the painter can represent facial expression as the poet can-
not, and that painting can awake greater emotion than poetry,
can move to joy and laughter, to sorrow and tears better than
poetry.

He recognizes nature as the true model of painting
and tells stories of paintings deceiving animals. But he also
holds, as Leonardo, that the painter is not obliged to follow
nature exactly, that he can invent forms that do not appear in

nature. And finally this Portuguese writer shows his dependence upon Italian theory by his exaltation of the beautiful.

6. Michelangelo Biondo

Biondo's treatise on painting written in 1549 is of interest as a work by one who was not an artist himself. Ilg thinks the treatise was wholly original, that he had not read other writings on painting. But certainly the relationship with Alberti is too evident to admit of this conclusion in spite of Biondo's promises that he will use only such sources as he will cite and give credit to in his treatise. There are a few similarities to Leonardo's writings; but these points are also found in Alberti and with the latter the parallels are closer: so it seems likely that it was from Alberti that most of the influence came directly.

7. Lodovico Dolce

Dolce, a Venetian art-writer of the middle of the sixteenth century, also shows the influence of Alberti; indeed, toward the end of the dialogue he refers to Alberti's treatise on painting for further treatment of the subject he has been discussing. Nevertheless there is much in his work for which the origin must be sought either directly or indirectly in Leonardo.

Dolce describes painting as the imitation of nature—

with due allowances for the artist's independent creative ability.

8. His dialogue on painting was published in 1557. He lived 1508-'57.
Poetry, too, strives after such an imitation; but Dolce will not allow that the poet can give any representation as true to life as the painter can. The painter, indeed surpasses nature.

"Although the painter be called a mute poet --- yet the figures of a painting may seem to laugh and weep, may seem to speak as the living." The painter, he says, can express emotions in the eyes, which are the windows of the soul. And later he admonishes the painter to see to it that his figures move the spirit of the observer.

Dolce expresses his belief in the superior genius of the painter and in his relation to God. In his more detailed praise of painting he speaks of its use in religion, of its preserving the images of great men, of its universal enjoyment, and of the dependence of the other arts and the manual works, upon painting through drawing, "for drawing is peculiar to painting," and "when one says that anything is beautiful, it will be said that it has drawing."

Dolce recognizes the necessity of harmony of the parts of a painting and of the concurrence of all the parts, with the purpose of the work. He asks for variety, but not variety at the expense of order. Also, he demands correct foreshortening, which makes things appear what they are not. In this regard light and shade and perspective are important for giving relief.

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1. Dolce: op.cit. pp.50,116. 2. Dolce: op.cit. p.21. 3. Dolce: op.cit. p.21. The metaphor here carries a meaning opposite to that which Leonardo gives it. Leonardo uses it to mean that through the eyes the soul looks upon the beauty of the world. For Dolce the metaphor means that through the eyes the world looks upon the soul. Cf. Par. IA, 14.
Like Leonardo, again, Dolce opposes people who call painting mechanical. And he seems to have Leonardo's idea of the nobility of an art's being enhanced by the greater ease with which it is carried out, when he says: "The best works are those that give the appearance of having been made the most easily."

Dolce, no more than Leonardo, would exclude the mass of people from some share in the judgment of art. "---For beauty is just the result of correct proportions, while ugliness is the result of the opposite. If one can distinguish beauty and ugliness in living forms, why should not one distinguish them in a yet higher degree in the imitated and inanimate form which painting is?" In this Dolce recognizes beauty as the principal aim of art. Use elsewhere takes a secondary place. He brings in one new criterion, however, that of morality, when he criticizes Michelangelo for his nude figures.

8. Jerome Cardan

Cardan need only be mentioned here as a source for some nearly exact excerpts from Leonardo. He has been characterized as a man with "a genius but no character, an unscrupulous plagiarist." His father, Razio Cardan was a friend of Leonardo. Leonardo himself tells of borrowing books from him. So the son probably had a good opportunity to know some of the artist's notes.
His statements in favor of the superiority of painting to the other arts give the impression of being short extracts from the Paragon. But the most numerous evidences of influence are in the field of mechanics.

9. Giovanni Paolo Lomazzo

Finally at the end of the sixteenth century we find a treatise that not only shows strong influence of Leonardo, but in which there is also direct reference to parts of the Paragon. In every treatise written after the fifteenth century that we have examined we have found indications of either direct or indirect knowledge of Leonardo; but Lomazzo is the only one who gives credit to the great predecessor.

Lomazzo, like Leonardo, treats both the theoretical and the practical sides of painting and he definitely states that neither theory nor practice can stand alone. He does not go much into the scientific aspect of painting, but in his proof that painting is a liberal art rather than mechanical he uses practically the same arguments Leonardo uses in his proof that painting is a science and is not mechanical. Indeed Lomazzo uses the terms, science and art, almost synonymously. "Although the painter cannot attain his end unless he uses hand and pencil, nevertheless, it is clear that in this exercise there is so little work and fatigue that there is not a free man in the world to whom such exercise would not be acceptable and infinitely

3. With the possible exception of Biondo's treatise.
delightful ——. If we consider besides that painting is dependent upon perspective, natural philosophy, and geometry, which are all without doubt liberal sciences (scienze liberali), and moreover that it has definite ends which it demonstrates by itself with its first and immediate principles, necessarily we must conclude that it is a liberal art (arte liberale)." The importance of mathematics is emphasized again when Lomazzo calls attention to the fact that Leonardo among others, held the view that no one could be called a painter who lacked knowledge of geometry and arithmetic and adds that all who aspire to success should follow the teachings of these writers, "for they will teach all the fundamentals of mathematical painting by points, lines, surfaces, and bodies." He attempts no thorough solution of mathematical problems himself. He acknowledges that his theory of sight is taken in large part from others, and he gives the theories of both Leonardo and Alberti.

The imitation of nature is the work of painting, and its most marvelous characteristic for both Lomazzo and Leonardo is that on a plane surface it makes figures appear in relief with its light and shade and perspective — it makes the plane surface appear what it is not. Lomazzo tells Leonardo's story and others of how painters have deceived animals. On account of its color, he says, painting can represent as real anything that has been created by God. "And the boast that can be made in this regard I judge to be one of the greatest that can be made of any art." Incidentally in this connection, is described as serving

the eye,"principal sense." He tells of how painting was esteemed in antiquity, how all other arts are dependent upon it, how it influences people in religion, and he cites Leonardo as saying that the strength of painting lies in its power to make the spectator feel the emotion expressed in the work. In the last analysis, however, Lomazzo, as Leonardo, values painting for its own sake: "--- it is one of those things which are desirable for themselves, because we realize that our soul gets marvelous peace and contentment just from seeing a beautiful picture and considering only, without going farther with the intellect, that which it externally represents."

Lomazzo makes a rather detailed comparison of painting and sculpture, though not of any of the other arts. He recognizes that the contest between the two is of long standing and that both sides have their champions. For his part, he tells us at the beginning that he has already contended in favor of painting. He shows the similarity between the two arts with the same reasoning we found Varchi using: "Sculpture and painting cannot be said to be different in their essentials, because both tend toward the same end", that is, toward imitating nature. Speaking of a painter and sculptor representing the same thing he says: "It is true that one paints and the other sculptures, but this is a material difference, which does not make a different species of art nor of science." But when he goes beyond his

4. Lomazzo: Tratt. v. I, p. 9: "---ella è una di quelle cose, le quali sono per se medesime desiderabile ---.
his general classification of the two arts, material considerations do enter into the question just as they do for Leonardo and result in the placing of painting above sculpture. Thus, he holds that "painting ought to be esteemed more artificial (più artificiosa) and of greater excellence than sculpture", because painting makes a two-dimensional plane appear to be a three-dimensional space, as sculpture does not do. The painter, then, is superior by reason of his use of perspective, and also by his power to imitate color - sculpture imitates the quantity, painting the quality of nature. Color enables the painter to represent all things in nature, many of which sculpture cannot represent, as, for example, day, night, smoke, and fish under water.

The direct citation Lomazzo makes to Leonardo's Paragon concerns what he terms his strongest argument for the superiority of painting to sculpture, that is, the physical fatigue caused by sculpture. Physical fatigue, as opposed to the mental fatigue caused by painting, is indeed one of the principal indictments Leonardo brings against sculpture. Lomazzo gives some of the details of Leonardo's arguments showing the pleasant and quiet work of the painter in contrast to the fatiguing, noisy life of the sculptor. The wording is strikingly similar to Leonardo's, considering Lomazzo's statement that it was in past years that he had read Leonardo's treatise.

Lomazzo includes a discussion of plastic with the rest of the argument he gives Leonardo credit for. But whether it belonged to a part of the Paragon now lost, or whether Lomazzo

got it elsewhere and forgot his source we cannot be sure. The subject is only suggested in the Paragon as we have it. Lomazzo says, as quoting Leonardo: "because plastic is sister of painting, as the ancients affirm, inasmuch as it is an art of less noise and fatigue than is laboring with stone, it was chosen by sculpture for her mother, so that she could find in it an example and guide, serving her with models of earth, which are nearer to the imagination than is she. This then is measured with the compass and in this way introduced into the marble figure---. From this it can be inferred that sculpture is a fatiguing imitation of plastic and a practice of cutting marble with diligence and much time. And the more it rises and nears perfection, the more it approaches plastic. That, therefore, which has in itself not less of design, composition of muscles, and outline than painting is held to be her sister, so it follows that painting comes to be aunt of sculpture and sister of plastic." Further in this chapter of quotation from Leonardo Lomazzo gives his predecessor's idea of the divinity of painting: "therefore this exercise (of painting) alone I in my humble judgment esteem to be the most excellent and divine in the world, since the artificer comes to show himself similar to God."

Lomazzo's concluding statements at this point show his high estimate of and dependence upon Leonardo: "These are the most proper (il più propri) words written by Leonardo in his aforesaid book, in which many others follow concerning this subject, which I have wished to insert here - because they

1. We find the discussion in briefer form in Vasari (see above p. 20. 2. Par. XLVI, 19. 3. Lomazzo: Tratt. v.I,p.265. 4. Lomazzo: Tratt. v.I,p.266.
are to the point in reasoning of the arts — in order that with the authority of such a man, a philosopher, architect, painter, and sculptor, who did not know less how to practice than to teach, those might be disillusioned who feel otherwise about the excellence of these two arts."

Very little is said of the comparison of painting with poetry. But that Lomazzo knew Leonardo's discussion of the subject is shown when he comments on the antique metaphor of speaking painting and mute poetry. Here he shows that painting too can express ideas, that it is speaking. And he continues: "Poetry is the shade of painting, and the shade cannot exist without its body, which is no other than this painting, as Leonardo has nobly described."

Part IV

Conclusion

Having made a study of the Paragon itself, of the earlier writings that may have served as sources for it, and of the later writings that show its close influence, we are now in a position to make an estimate of the original contribution which Leonardo made in this division of his writings.

From the ancients he, together with his contemporaries, inherited the Ciceronian ideal of independence and self-sufficiency. And in him, above all others of his time, this ideal was developed. We have found him not so much ahead of the spirit of his time as its complete representative. He, as no other, was able to realize the ideal of the Renaissance in all its phases. His character is the best illustration one could find of what Janitschek calls the crystalization of the humanistic ideal: "Auslebung der Personlichkeit nach allen ihren Anlagen und Kräften hin" - the expression of personality according to all its native tendencies and powers.

Cennini, a century before Leonardo, had only the faintest glimmerings of this ideal. He was still quite firmly bound by the thongs of tradition. Filarete was far from having the originality he might have had, considering his proximity to Leonardo in point of time. He had not the interest and the genius to make much advance in personal investigation. He was satisfied to rely upon the results gained by predecessors. In Alberti we have a character much more closely approximating Leonardo in genius. His interest extended into many fields and his original ideas were far-reaching. But even he came short of the originality of Leonardo. He had a greater respect for the classics than Leonardo.

1. Alberti: op. cit. p. II.
had. So he went to the ancients for his theory of sight instead of working it out by experiment as Leonardo did. Consequently he is less clear in his results—both in this and in his theory of perspective.

This spirit of independence served as a great impetus to the modern experimental method of Leonardo's investigations. But there was nothing in antiquity that could be compared with Leonardo's empiricism. Nor was there anything to equal it at any time before Leonardo. Here Alberti's treatise on painting is lacking much more than we found it to be in the matter of originality and independence. For, while Alberti's work as a whole is very remarkable for its originality, much of it is the product of clear and logical reasoning without the accompaniment of experiment that we invariably find in Leonardo. Thus, Alberti hardly touches upon the practice of painting in his writings—all is theory, while in Leonardo's manuscripts both the practical and theoretical receive their share of attention.

In the Classics are prototypes for some of Leonardo's theories of art. There is an emphasis of harmony—a onesided harmony, to be sure—in Plato. And in Aristotle there is an explanation of the imitation of nature through art that comes very close to Leonardo's theory. In the work of Cennini, at the beginning of the fifteenth century, we have bare suggestions of some of Leonardo's very important theories, as that regarding the significance of relief. In Alberti we have a large number of Leonardo's theories, often but slightly developed. There is the suggestion of the mathematical basis of painting, with some discussion of perspective. Also we find here the theory of imitation and invention in painting, of the expression of emotion and feeling,
and of the necessity of harmony and proportion and relief. There are slight suggestions of comparisons of painting with poetry and sculpture, and the relation with Leonardo is especially striking in the spirit of praise of painting, which is evident all through the work. Filarete also exalts painting in all the space he devotes to that art. In him we find, too, more of a beginning of a comparison of painting and sculpture than in Alberti. All of these phases and many more Leonardo developed and the development is mostly in connection with his comparison of the arts.

The Paragon is not to be judged merely as an entertaining debate, interesting for its clever arguments and rebuts. Through it Leonardo shows the necessity of both theory and practice for art, the importance of a high degree of mentality as well as dexterity in technique on the part of the artist. He develops his theories of the aesthetic qualities of art. He shows that for him these consist principally in a union of the ideal and the real, a beautiful and perfect harmony, and the expression of life and emotion. Finally, through the comparison Leonardo gives criteria for defining the limits of the fields of the various arts, explaining their forms of expression and their methods of appeal. For this purpose an explanation of the differences between the senses of sight and hearing is necessary. This leads Leonardo to his praise of the eye.

We may not always approve of the conclusions at which Leonardo arrives in his procedure of limiting the fields of the arts. Most of them however appeal to us as reasonable, and even if this were not true there would still be much value in the work.

1. These represent the ideals after which the true artist still strives. They appear, to be sure, in varying degrees. For example, we have realists from whose work the ideal is almost excluded.

2. Such as his limiting poetry to description.
through the suggestion of the direction in which results might be sought.

Leonardo makes, in the first place, a division of the arts into two classes, poetry and music on the one hand, and painting and sculpture on the other. The former are expressed by words and symbols which make their appeal through sound. So the poet and the musician must reckon with the element of time. And they fail in their art if in a feature that depends for the desired effect upon the retention of all its parts in the mind of the listener or reader there is contained more than memory can compass. Painting and sculpture, on the other hand, are produced with figures and forms that appeal to the sense of sight. Upon them the time element exercises no influence. They are limited in other ways. Forms, facial movements, and gestures by the sculptor, together with color, chiaroscuro, and perspective by the painter are used for the solution of problems that the poet attempts with the meaning and sound of words, and the musician often with pure sound. In the matter of harmony the fields of painting and music overlap.

While Leonardo's emphasis of the difference between sculpture and painting in the execution, (the one incurring much more physical fatigue than the other) seems over-emphasized as a criterion for judging of the artistic value of the arts, it is suggestive of means of distinguishing the fields of the two. Leonardo shows that these material differences as well as the sculptor's lack of color, chiaroscuro, and perspective in the

1. Upon this observation much of modern painting is based. Whistler's paintings appeal to one often as beautiful musical compositions, and some of them are aptly called symphonies and nocturnes in color; e.g. Nocturne in Green and Gold; --Gremorne Gardens; London at Night --Metropolitan Museum.
sense that the painter has them, make it impossible for the sculptor to represent the extensive subject range of the painter.

Leonardo's theories in the Paragon are, as we should perhaps expect, perverted by some writers who came after him. His arguments are used at times with intentions directly opposed to his own. Thus, his observation that sculpture represents things in the round as they are in nature, so that one can distinguish their forms by touch, is used by Tasso and Tribolo as their principal arguments to prove the superiority of sculpture over painting. For Leonardo it might a mark of superiority for painting, because to make a plane surface appear relieved requires more skill than to give a solid actual relief. Tasso and Tribolo here show a misuse of Leonardo's emphasis of the importance of imitation in art. Again, Cellini deliberately and without presenting his reasons— if he had reasons—makes for sculpture claims that Leonardo makes for painting, saying that sculpture has the other arts subordinate to it and the sculptor can easily become a good painter.

Many of Leonardo's theories we have found merely reiterated by later writers. When the author explains them, as Pacioli does, he shows that he is not copying blindly, but that he understands the meaning with which Leonardo used them. But the best evidences of the worth of the Paragon for those who came after Leonardo are shown in cases where writers have amplified the comparisons and have developed more fully or corrected the theories involved in them. Sometimes these theories are treated stripped of the comparisons in which Leonardo develops them.

Dürer, for example, makes clear, connected statements of some theories that we have to piece out from various passages in Leonardo. He tells us that painting not only appeals to the
inner reason with force, but also to the senses. He clearly states that while geometry is necessary for painting it cannot be depended upon entirely. He explains that by imitation is meant the production of such things as nature can allow. Also he explains that the reason for the necessity of practice being accompanied by theory is that it makes it possible for the artist to work with understanding, to know the reason for doing his work in one way rather than in another. All these ideas we find in Leonardo, but in a less connected form than in Dürer.

Varchi, looking at the arguments that are made for both sides in the comparison of sculpture and painting, arrives at a conclusion that seems very reasonable to us of today. He says that painting and sculpture cannot be said to be one superior to the other, both have the same aim, and the differences concern only the details of the manner in which this end is gained. Such details, involving varying degrees of fatigue and difficulty, are not, he believes, of artistic concern. Michelangelo has much the same idea. In fact Varchi has probably got it from him, but has developed it more fully. Varchi also sees, as Leonardo did not, that although various sciences are not the peculiar fields of the poet, yet he may still be a poet while treating such subjects.

Vasari, Bronzino, and Pontormo give some new minor arguments for both painting and sculpture. To the sculptor's arguments that the painter can represent a figure in only one view and that he can remedy mistakes, San Gallo gives answers that are original and more favorable to painting than are Leonardo's.

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1. Lomazzo also has it but does not hold to it consistently.
He recognizes a value in these characteristics of painting in making it possible to gain a more beautiful result than could otherwise be reached.

Finally, Lomazzo, aside from the theories of Leonardo that he presents in almost their original form, states more clearly than Leonardo that the end of art is not to be sought outside itself.

After all, in the field we are studying we have found very little real advance over Leonardo in nearly a century of time following him - a fact that is indicative of the phenomenal originality of his work. Not only have we found few indications of advance, but we have found no writing that equals the Paragon in its particular field. Others are more polished and finished, but none approach Leonardo's work in the characteristics that count most in making for it an important place among writings on art.

Among works we have examined both before and after it the Paragon stands alone, first, in the style of its presentation. The simplicity and directness with which the arguments are given make one almost feel the presence of Leonardo. His personality is in no sense suppressed, and the vivacity and spirit with which he throws himself into the discussion holds the interest of the reader so that the lack of polish becomes a matter of little significance. Indeed, the form in which the work has come down to us is not to be altogether regretted. It has about it something of the charm of the crayon sketches of Leonardo. It gives us the first thoughts of the master on the subjects treated, not worked over and modified, but just as they were originally conceived. Personal prejudices, and failures in the matter of justice, and false arguments - all are there in bold outline, along with the clear
Then the subject matter of the Paragon is unique. Nowhere else have we found an equally thorough-going comparison of the four arts of painting, poetry, music, and sculpture. There were only bare suggestions of such a thing before Leonardo and but partial treatments afterward. In making his extensive comparison of the arts Leonardo applied to a new field a method of research that has in modern times become very common in all departments of learning. We compare one language with another, one school of philosophy with another, one artist with another—not, necessarily, that we may determine which is the better, but because through such means we arrive at a clearer understanding of the individual subjects. True, the question of superiority is continually emphasized in the Paragon; but the worth of the comparison for the solution of other problems is there nevertheless, as has been pointed out above, and it exercised its influence upon later writers.

With Lomazzo, we come to the end of the clear and immediate influence of the Paragon. But it is by no means the end of interest in the subject of the Paragon. We have many seventeenth, eighteenth, and early nineteenth century comparisons of the arts, particularly of painting and poetry. In these there is a marked tendency to minimize the distinctions between the formative arts and to distinguish more clearly between these on the one hand and poetry and music on the other. Aesthetic theories, of which we

J. Sir R. Phillimore in his copious notes incorporated with his publication of Lessing's Laocoon has given a broad resume of writings of these centuries on the comparison of the arts.
have found the beginning in Leonardo, have been worked out in much greater detail by philosophers and aesthetes. Sharp distinctions have been made between imitative and creative art, between sensuous and intellectual beauty, and between empirical and rational science, all of which we have found unconsciously blended together by Leonardo, without any attempt at distinction. But a study of this later period does not come within the scope of the present work. We must be satisfied if we have succeeded in making clear the extent of the original contribution of Leonardo himself to the theory of art and the immediate influence which his contribution had upon writers of the sixteenth century.

1. James Wolff (L. d. V. als Ästhetiker, Jena 1901) gives a brief discussion of the later works of this nature from Bacon and Descartes to Herbart.
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VITA

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