Try to get Vitolone, which is in the library at Pavia [Footnote 26: Vitolone see No. 1506, note.

Libreria di Pavia. One of the most famous of Italian libraries.

After the victory of Novara in April 1500, Louis XII had it conveyed to France, 'come trofeo di vittoria'!] and which treats of Mathematics,--He had a master [learned] in waterworks and get him to explain the repairs and the costs, and a lock and a canal and a mill in the Lombard fashion.

A grandson of Gian Angelo's, the painter has a book on water which was his fathers.

Paolino Scarpellino, called Assiolo has great knowledge of water works.

[Footnote 12: Sco Lorenzo. A church at Milan, see pp. 39, 40 and 50.]

[Footnote 13. 24: Gruppi. See Vol. I p. 355, No. 600, note 9.]

[Footnote 16: The Portinari were one of the great merchantfamilies of Florence.]

1449.

Francesco d'Antonio at Florence.

1450.

Giuliano Condi[1],--Tomaso Ridolfi,-- Tomaso Paganelli,--Nicolo del Nero,--Simone Zasti,--Nasi,--the heir of Lionardo Manelli, --Guglielmo di Ser Martino,--Bartolomeo del Tovaglia,--Andrea Arrigucci,-- Nicolo Capponi,--Giovanni Portinari.

[Footnote: I. Guiliano Gondi. Ser Piero da Vinci, Leonardo's father, lived till 1480, in a house belonging to Giuliano Gondi. In 1498 this was pulled down to make room for the fine Palazzo built on the Piazza San Firenze by Giuliano di San Gallo, which still exists. In the Riassunto del Catasto di Ser Piero da Vinci, 1480, Leonardo is not mentioned; it is evident therefore that he was living elsewhere. It may be noticed incidentally that in the Catasto di Giuliano Gondi of the same year the following mention is made of his four eldest sons:

Lionardo mio figliuolo d'eta d'anni 29, non fa nulla, Giovambatista d'eta d'anni 28 in Ghostantinopoli, Billichozo d'eta d'anni 24 a Napoli, Simone d'eta d'anni 23 in Ungheria.

He himself was a merchant of gold filigree (facciamo lavorare una bottegha d'arte di seta ... facciamo un pocho di trafico a Napoli).

As he was 59 years old in 1480, he certainly would not have been

alive at the time of Leonardo's death. But Leonardo must have been on intimate terms with the family till the end of his life, for in a letter dated June 1. 1519, in which Fr. Melzi, writing from Amboise, announces Leonardo's death to Giuliano da Vinci at Florence (see p. 284), he says at the end "Datemene risposta per i Gondi" (see UZIELLI, Ricerche, passim).

Most of the other names on the list are those of well-known Florentine families.]

1451.

Pandolfino.

1452.

Vespuccio will give me a book of Geometry.

[Footnote: See No. 844, note, p. 130.]

1453.

Marcantonio Colonna at Santi Apostoli.

[Footnote: In July 1506 Pope Julius II gave Donna Lucrezia della Rovere, the daughter of his sister Lucchina, in marriage to the

youthful Marcantonio Colonna, who, like his brothers Prospero and Fabrizio, became one of the most famous Captains of his family. He gave to him Frascati and made him a present of the palazzo he had built, when Cardinal, near the church of Santi Apostoli which is now known as the Palazzo Colonna (see GREGOROVIUS, Gesch. der Stadt Rom. Vol. VIII, book XIV I, 3. And COPPI, Mem. Colonnesi p. 251).]

1454.

A box, a cage,-- A square, to make the bird [Footnote 2: Vasari states that Leonardo invented mechanical birds which moved through the air. Compare No. 703.],-- Pandolfino's book, mortar [?],-- Small knives, Venieri for the

[Footnote: Much of No. 1444 is repeated in this memorandum.]

Pen for ruling, stone,--star,--

To have the vest dyed, Alfieri's tazza,--

The Libraries, the book on celestial phenomena,--

Lactantius of the go to the house of Daldi,-- the Pazzi,

Book from Maestro small box,
Paolo Infermieri,
Boots, shoes and small gimlet,
hose,
Lac,,
An apprentice for,
models,
Grammar of Lo- the amount of the
renzo de' Medici,
Giovanni del Sodo
for,the broken
Sansovino, the
Piero di Cosino the wings,
[Ftt16, Di1; Oit] 1 Flti

[Footnote 16: Pier di Cosimo the well known Florentine painter 1462-1521. See VASARI, Vite (Vol. IV, p. 134 ed. Sansoni 1880) about Leonardo's influence on Piero di Cosimo's style of painting.]

Filippo and Lorenzo [Footnote 17: Filippo e Lorenzo; probably the painters Filippino Lippi and Lorenzo di Credi. L. di Credi's pictures and Vasari's history of that painter bear ample evidence to his intimate relations with Leonardo.],--A ruler-,-- Spectacles,--to do the..... again,--Tomaso's book,--Michelagnolo's chain,--The multiplication of roots,--Of the bow and strinch,--The map of the world from Benci,-- Socks,--The clothes from the custom-house officier,--Cordova leather,--Market books, --waters of Cronaca,--waters of Tanaglino..., --the caps,--Rosso's mirror; to see him make it,--1/3 of which I have 5/6,--on the celestial phenomena, by Aristotle [Footnote 36: Meteora. See No. 1448, 25.],--boxes of Lorenzo di Pier Francesco [Footnote 37: Lorenzo di Pier Francesco and his brother Giovanni were a lateral branch of the Medici family and changed their name for that of Popolani.],--Maestro Piero of the Borgo,--To have my book bound,--Show the book to Serigatto,-- and get the rule of the clock [Footnote 41: Possibly this refers to the clock on the tower of the Palazzo Vecchio at Florence. In February 1512 it had been repaired, and so arranged as to indicate the hours after the French manner (twelve hours a. m. and as many p. m.).],-ring,--nutmeg,--gum,--the square,--Giovan' Batista at the piazza, de' Mozzi,--Giovanni Benci has my book and jaspers,--brass for the spectacles.

1455.

Search in Florence for.....

1456.

Bernardo da Ponte ... Val di Lugano ... many veins for anatomical demonstration.

[Footnote: This fragmentary note is written on the margin of a drawing of two legs.]

1457.

Paolo of Tavechia, to see the marks in the German stones.

[Footnote: This note occurs on a pen and ink drawing made by Leonardo as a sketch for the celebrated large cartoon in the possession of the Royal Academy of Arts, in London. This cartoon is commonly supposed to be identical with that described and lauded by Vasari, which was exhibited in Florence at the time and which now seems to be lost. Mr. Alfred Marks, of Long Ditton, in his valuable paper (read before the Royal Soc. of Literature, June 28, 1882) "On the St. Anne of Leonardo da Vinci", has adduced proof that the cartoon now in the Royal Academy was executed earlier at Milan. The note here given, which is written on the sheet containing the study for the said cartoon, has evidently no reference to the drawing on which it is written but is obviously of the same date. Though I have

not any opening here for discussing this question of the cartoon, it seemed to me important to point out that the character of the writing in this note does not confirm the opinion hitherto held that the Royal Academy cartoon was the one described by Vasari, but, on the contrary, supports the hypothesis put forward by Mr. Marks.]

Notes on pupils (1458-1468.)

1458.

Giacomo came to live with me on St.-Mary Magdalen's [Footnote: Il di della Maddalena. July 22.] day, 1490, aged 10 years. The second day I had two shirts cut out for him, a pair of hose, and a jerkin, and when I put aside some money to pay for these things he stole 4 lire the money out of the purse; and I could never make him confess, though I was quite certain of the fact.--Thief, liar, obstinate, glutton.

The day after, I went to sup with Giacomo Andrea, and the said Giacomo supped for two and did mischief for four; for he brake 3 cruets, spilled the wine, and after this came to sup where I ....

Item: on the 7th day of September he stole a silver point of the value of 22 soldi from Marco[Footnote 6: Marco, probably Leonardo's pupil Marco d'Oggionno; 1470 is supposed to be the date of his birth and 1540 of his death.

Che stava con meco. We may infer from this that he left the master shortly after this, his term of study having perhaps expired.] who was living with me, 4 lire this being of silver; and he took it from his studio, and when the said Marco had searched for it a long while he found it hidden in the said Giacomo's box 4 lire.

Item: on the 26th January following, I, being in the house of Messer Galeazzo da San Severino [Footnote 9: Galeazzo. See No. 718 note.], was arranging the festival for his jousting, and certain footmen having undressed to try on some costumes of wild men for the said festival, Giacomo went to the purse of one of them which lay on the bed with other clothes, 2 lire 4 S, and took out such money as was in it.

Item: when I was in the same house, Maestro Agostino da Pavia gave to me a Turkish hide to have (2 lire.) a pair of short boots made of it; this Giacomo stole it of me within a month and sold it to a cobbler for 20 soldi, with which money, by his own confession, he bought anise comfits.

Item: again, on the 2nd April, Giovan Antonio [Footnote 16: Giovan Antonio, probably Beltraffio, 1467 to 1516.] having left a silver point on a drawing of his, Giacomo stole it, and this was of the value of 24 soldi (1 lira 4 S.)

The first year-

A cloak, 2 lire,

6 shirts, 4 lire,

3 jerkins, 6 lire,

4 pairs of hose, 7 lire 8 soldi,

1 lined doublet, 5 lire,

24 pairs of shoes, 6 lire 5 soldi,

A cap, 1 lira,

laces, 1 lira.

[Footnote: Leonardo here gives a detailed account not only of the loss he and others incurred through Giacomo but of the wild tricks of the youth, and we may therefore assume that the note was not made merely as a record for his own use, but as a report to be forwarded to the lad's father or other responsible guardian.]

1459.

On the last day but one of September;

Thursday the 27th day of September Maestro Tommaso came back and worked for himself until the last day but one of February. On the 18th day of March, 1493, Giulio, a German, came to live with me,--Lucia, Piero, Leonardo.

On the 6th day of October.

1460.

1493. On the 1st day of November we settled accounts. Giulio had to pay 4 months; and Maestro Tommaso 9 months; Maestro Tommaso afterwards made 6 candlesticks, 10 days' work; Giulio some fire-tongs 15 days work. Then he worked for himself till the 27th May, and worked for me at a lever till the 18th July; then for himself till the 7th of August, and for one day, on the fifteenth, for a lady. Then again for me at 2 locks until the 20th of August.

1461.

On the 23rd day of August, 12 lire from Pulisona. On the 14th of March 1494, Galeazzo came to live with me, agreeing to pay 5 lire a month for his cost paying on the 14th day of each month.

His father gave me 2 Rhenish florins.

On the 14th of July, I had from Galeazzo 2 Rhenish florins.

1462.

On the 15th day of September Giulio began the lock of my studio 1494.

1463.

Saturday morning the 3rd of August 1504 Jacopo the German came to live with me in the house, and agreed with me that I should charge him a carlino a day.

1464.

1511. On the 26th of September Antonio broke his leg; he must rest 40 days.

[Footnote: This note refers possibly to Beltraffio.]

1465.

I left Milan for Rome on the 24th day of September, 1513, with Giovanni [Footnote 2: Giovan; it is not likely that Leonardo should have called Giovan' Antonio Beltraffio at one time Giovanni, as in this note and another time Antonio, as in No. 1464 while in No. 1458 l. 16 we find Giovan'Antonio, and in No. 1436, l.6 Beltraffio. Possibly the Giovanni here spoken of is Leonardo's less known pupil Giovan Pietrino (see No. 1467, 5).], Francesco di Melzi [Footnote 2,3: Francesco de' Melzi is often mentioned, see Nos. 1350.], Salai [Footnote 3: Salai. See No. 1519 note.], Lorenzo and il Fanfoia.

[Footnote 4: Lorenzo. See No. 1351, l. 10 (p. 408). Amoretti gives the following note in Mem. Stor. XXIII: 1505. Martedi--sera a di 14 d'aprile. Venne Lorenzo a stare con mecho: disse essere d'eta d'anni 17 .. a di 15 del detto aprile ebbi scudi 25 d'oro dal chamerlingo di Santa Maria nuova. This, he asserts is derived from a MS. marked S, in quarto. This MS. seems to have vanished and left no trace behind; Amoretti himself had not seen it, but copied from a selection of extracts made by Oltrocchi before the Leonardo MSS. were conveyed to Paris on the responsibility of the first French Republic. Lorenzo, by this, must have been born in 1487. The sculptor Lorenzetto was born in 1490. Amoretti has been led by the above passage to make the following absurd observations:

Cotesto Lorenzo, che poi gli fu sempre compagno, almeno sin che stette in Italia, sarebb' egli Lorenzo Lotto bergamasco? Sappiamo essere stato questo valente dipintore uno de'bravi scolari del Vinci (?).

Il Fafoia, perhaps a nickname. Cesare da Sesto, Leonardo's pupil, seems to have been in Rome in these years, as we learn from a drawing by him in the Louvre.

1466.

On the 3rd day of January.

Benedetto came on the 17th of October; he stayed with me two months and 13 days of last year, in which time he earned 38 lire, 18 soldi and 8 dinari; he had of this 26 lire and 8 soldi, and there remains to be paid for the past year 12 lire 10 soldi.

Giodatti (?) came on the 8th day of September, at 4 soldi a month, and stayed with me 3 months and 24 days, and earned 59 lire 14 soldi and 8 dinari; he has had 43 lire, 4 soldi, there remains to pay 16 lire, 10 soldi and 8 dinari.

Benedetto, 24 grossoni.

[Footnote: This seems to be an account for two assistants. The name of the second is scarcely legible. The year is not given. The note is nevertheless of chronological value. The first line tells us the date when the note was registered, January 3d, and the observations that follow refer to events of the previous month 'of last year' (dell'anno passato). Leonardo cannot therefore have written thus in Florence where the year was, at that period, calculated as beginning in the month of March (see Vol. I, No. 4, note 2). He must then have been in Milan. What is more important is that we thus learn how to date the beginning of the year in all the notes written at Milan. This clears up Uzielli's doubts: A Milano facevasi cominciar l'anno ab incarnatione, cioe il 25 Marzo e a nativitate, cioe il 25 Decembre. Ci sembra probabile che Leonardo dovesse

prescegliere lo stile che era in uso a Firenze. (Ricerche, p. 84, note.)] 1467. Gian Maria 4, Benedetto 4, Gian Pietro [5] 3, Salai 3, Bartolomeo 3, Gherardo 4. 1468. Salai, 20 lire, Bonifacio, 2 lire, Bartolomeo, 4 lire, Arrigo [Harry], 15 lire. Quotations and notes on books and authors (1469-1508). 1469.

Book on Arithmetic [Footnote 1: "La nobel opera de arithmethica ne la qual se tracta tute cosse amercantia pertinente facta & compilata per Piero borgi da Veniesia", in-40. In fine: "Nela inclita cita di

Venetia a corni. 2 augusto. 1484. fu imposto fine ala presente opera." Segn. a--p. quaderni. V'ha pero un' altra opera simile di Filippo Calandro, 1491. E da consultarsi su quest' ultimo, Federici: Memorie Trevigiane, Fiore di virtu: pag. 73. "Libricciuolo composto di bello stile verso il 1320 e piu volte impresso nel secolo XV (ristampato poi anche piu tardi). Gli accademici della Crusca lo ammettono nella serie dei testi di lingua. Vedasi Gamba, Razzolini, Panzer, Brunet, Lechi, ecc. (G. D'A.)], 'Flowers of Virtue',

Pliny [Footnote 2: "Historia naturale di C. Plinio Secondo, tradocta di lingua latina in fiorentina per Christophoro Laudino & Opus Nicolai Jansonis gallici imp. anno salutis M.CCCC.LXXVI. Venetiis" in-fol.--Diogene Laertio. Incomincia: "El libro de la vita de philosophi etc.: Impressum Venetiis" per Bernardinum Celerium de Luere, 1480", in-40 (G. D'A.).], 'Lives of the Philosophers',

The Bible [Footnote 3: "La Bibia volgare historiata (per Nicolo di Mallermi) Venecia ... M.CCCC.LXXI in kalende di Augusto (per Vindelino de Spira)" 2 vol. in-fol. a 2 col. di 50 lin,; od altra ediz. della stessa versione del Mallermi, Venetia 1471, e sempre: "Venecia per Gabriel de Piero 1477," in-fol.; 2 vol.; Ottavio Scotto da Modoetia 1481," "Venetia 1487 per Joan Rosso Vercellese," "1490 Giovanni Ragazo di Monteferato a instantia di Luchanthonio di Giunta, ecc."--Lapidario Teofrasto? Mandebille: "Le grand lapidaire," versione italiana ms.?... Giorgio Agricola non puo essere, perche nato nel 1494, forse Alberto Magno: de mineralibus.

Potrebbe essere una traduzione del poema latino (Liber lapidum seu de gemmis) di Marbordio Veterio di Rennes (morto nel 1123 da lui stesso tradotto in francese dal greco di Evao re d'Arabia celebre medico che l'aveva composto per l'imperatore Tiberio. Marbodio scrisse il suo prima per Filippo Augusto re di Francia. Vi sono anche traduzioni in prosa. "Il lapidario o la forza e la virtu delle pietre preziose, delle Erbe e degli Animali." (G. D'A.)], 'Lapidary',

'On warfare' [Footnote 4: Il Vegezio? ... Il Frontino? ... Il Cornazzano?... Noi crediamo piuttosto il Valturio. Questo libro doveva essere uno de'favoriti di Leonardo poiche libro di scienza e d'arte nel tempo stesso.], 'Epistles of Filelfo',

[Footnote: The late Marchese Girolamo d'Adda published a highly valuable and interesting disquisition on this passage under the title: Leonardo da Vinci e la sua Libreria, note di un bibliofilo (Milano 1873. Ed. di soli 75 esemplari; privately printed). In the autumn of 1880 the Marchese d'Adda showed me a considerable mass of additional notes prepared for a second edition. This, as he then intended, was to come out after the publication of this work of mine. After the much regretted death of the elder Marchese, his son, the Marchese Gioachino d'Adda was so liberal as to place these MS. materials at my disposal for the present work, through the kind intervention of Signor Gustavo Frizzoni. The following passages, with the initials G. d'A. are prints from the valuable notes in that

publication, the MS. additions I have marked. I did not however think myself justified in reproducing here the acute and interesting observations on the contents of most of the rare books here enumerated.]

[Footnote: 1467. 5. See No. 1465, 2.]

The first decade, [5] 'On the preservation of health', The third decade, [6] Ciecho d'Ascoli, The fourth decade, [7] Albertus Magnus, Guido, [8] New treatise on rhetorics, Piero Crescentio, [9] Cibaldone, 'Quadriregio', [10] Aesop,

Donato, [Footnote 11: "Donatus latine & italice: Impressum Venetiis impensis Johannis Baptistae de Sessa anno 1499, in-4°".-- "El Psalterio de David in lingua volgare (da Malermi Venetia nel M.CCCC.LXXVI," in-fol. s. n. (G. D'A.)] Psalms,

Justinus, [Footnote 12: Compare No. 1210, 48.--La versione di Girolamo Squarzafico: "Il libro di Justino posto diligentemente in materna lingua. Venetia ale spesse (sic) di Johane de Colonia & Johane Gheretze ... 1477," in-fol.--"Marsilii Ficini, Theologia platonica, sive de animarum immortalitate, Florentine, per Ant. Misconimum 1482," in-fol., ovvero qualche versione italiana di questo stesso libro, ms. (G. D'A.)] 'On the immortality of the soul,

Guido [Footnote 13: Forse "la Historia Trojana Guidonis" od il "manipulus" di "Guido da Monterocherii" ma piu probabilmente "Guido d'Arezzo" il di cui libro: "Micrologus, seu disciplina artis musicae" poteva da Leonardo aversi ms.; di questi ne esistono in molto biblioteche, e fu poi impresso nel 1784 dal Gerbert.

Molte sono le edizione dei sonetti di Burchiello Fiorentino, impresse nel secolo XV. La prima e piu rara e recercata:
"Incominciano li sonetti, ecc. (per Christoforo Arnaldo)", in-4° senza numeri, richiami o segnature, del 1475, e fors' anche del 1472, secondo Morelli e Dibdin, ecc. (G. D'A.)] Burchiello,

'Doctrinale' [Footnote 14: Versione italiana det "Doctrinal de Sapience" di Guy de Roy, e foris'anche l'originale in lingua francese.--

Di Pulci Luigi, benche nell' edizione: "Florentiae 1479" in-4° si dica: "Il Driadeo composto in rima octava per Lucio Pulcro" Altre ediz, del secolo XV, "Florentie Miscomini 1481, in-40, Firenze, apud S. Jacob, de Ripoli, 1483," in-4° e "Antoni de Francesco, 1487," in-4° e Francesco di Jacopo 1489,in-4° ed altre ancora di Venezia e senza alcuna nota ecc. (G. D'A.)] Driadeo,

Morgante | Footnote 15: Una delle edizioni del Morgante impresse nel

secolo XV, ecc.--

Quale delle opere di Francesco Petrarca, sarebbe malagevole l'indovinare, ma probabilmente il Canzoniere. (G. D'A.)] Petrarch.

John de Mandeville [Footnote 16: Sono i viaggi del cavaliere "Mandeville" gentiluomo inglese. Scrisse il suo libro in lingua francese. Fu stampato replicatamente nel secolo XV in francese, in inglese ed in italiano ed in tedesco; del secolo XV ne annoverano forse piu di 27 edizioni, di cui ne conosciamo 8 in francese, quattro in latino, sei in tedesco e molte altre in volgare. (G. D'A.)]

'On honest recreation' [Footnote 17: Il Platina (Bartolomeo Sacchi) la versione italiana "de la honesta voluptate, & valetudine (& de li obsonnii) Venetia (senza nome di tipografo) 1487," piccolo in-4° gotico. (G. D'A.)--Compare No. 844, 21.]

Manganello, [Footnote 18: Il Manganello: Satira eccessivamente vivace contro le donne ad imitazione della Sesta di Giovenale.

Manganello non e soltanto il titolo del libricino, sua ben anche il nome dell'autore ch'era un "milanese". Di questo libercolo rarissimo, che sembra impresso a Venezia dallo Zoppino (Nicolo d'Aristotile detto il), senza data, ma dei primissimi anni del secolo XVI, e forse piu antico, come vedremo in appresso, non se ne conoscono fra biblioteche pubbliche e private che due soli esemplari

The Chronicle of Isidoro, [Footnote 19: "Cronica desidero", sembra si deggia leggere piuttosto "cronico disidoro"; ed in questo caso s'intenderebbe la "cronica d'Isidoro" tanto in voga a quel tempo "Comenza la Cronica di Sancto Isidoro menore con alchune additione cavate del testo & istorie de la Bibia & del libro di Paulo Oroso .... Impresso in Ascoli in casa del reverendo misser Pascale ..... per mano di Guglielmo de Linis de Alamania M.CCCC.LXXVII" in-4° di 157 ff. E il primo libro impresso ad Ascoli e l'edizione principe di questa cronica in oggi assai rara. Non lo e meno l'edizione di Cividal del Friuli, 1480, e quella ben anche di Aquila, 1482, sempre in-4°. Vedasi Panzer, Hain, Brunet e P. Dechamps. (G. D'A.)]

The Epistles of Ovid, [Footnote 20: "Le pistole di Ovidio tradotte in prosa. Napoli Sixt. Riessinger", in-4°, oppure: "Epistole volgarizzate 1489," in-4° a due col. "impresse ne la cita (sic) di Bressa per pre: Baptista de Farfengo," (in ottave) o: "El libro dele Epistole di Ovidio in rima volgare per messere Dominico de Monticelli toschano. Brescia Farfengo," in-4° got. (in rima volgare), 1491, ed anche la versione di Luca Pulci. Firenze, Mischomini, 1481, in-4°. (G. D'A.) ]

Epistles of Filelfo, [Footnote 21: See 1. 4.]

Sphere, [Footnote 22: "Jo: de Sacrobusto," o "Goro Dati," o "Tolosano da Colle" di cui molteplici edizioni del secolo XV. (G. D'A.)]

The Jests of Poggio, [Footnote 23: Tre edizioni delle facezie del Poggio abbiamo in lingua italiana della fine del secolo XV, tutte senza data. "Facetie de Poggio fiorentino traducte de latino in vulgare ornatissimo," in-40, segn. a--e in caratteri romani; l'altra: "Facetie traducte de latino in vulgare," in-40, caratteri gotici, ecc. (G. D'A.)] Chiromancy, [Footnote 24: "Die Kunst Cyromantia etc, in tedesco. 26 ff. di testo e figure il tutte eseguito su tavole di legno verso la fine del secolo XV da Giorgio Schapff". Dibdin, Heinecken, Sotheby e Chatto ne diedero una lunga descrizione; i primi tre accompagnati da fac-simili. La data 1448 che si legge alla fine del titolo si riferisce al periodo della composizione del testo, non a quello della stampa del volume benche tabellario. Altri molti libri di Chiromanzia si conoscono di quel tempo e sarebbe opera vana il citarli tutti. (G. D'A.)]

Formulary of letters, [Footnote 25: Miniatore Bartolomeo.

"Formulario de epistole vulgare missive e responsive, & altri fiori de ornali parlamenti al principe Hercule d'Esti ecc. composto ecc.

Bologna per Ugo di Rugerii," in-40, del secolo XV. Altra edizione di "Venetia Bernardino di Novara, 1487" e "Milano per Joanne Angelo Scinzenzeler 1500," in-40. (G. D'A.)

Five books out of this list are noted by Leonardo in another MS. (Tr. 3): donato, -- lapidario, -- plinio, -- abacho, -- morgante.]

1470.

Nonius Marcellus, Festus Pompeius, Marcus Varro.

[Footnote: Nonius Marcellus and Sextus Pompeius Festus were Roman grammarians of about the fourth century A. D. Early publications of the works of Marcellus are: De proprietate sermonis, Romae (about 1470), and 1471 (place of publication unknown). Compendiosa doctrina, ad filium, de proprietate sermonum. Venice, 1476. BRUNET, Manuel du libraire (IV, p. 97) notes: Le texte de cet ancien grammairien a ete reimprime plusieurs fois a la fin du XVe siecle, avec ceux de Pomponius Festus et de Terentius Varro. La plus ancienne edition qui reunisse ces trois auteurs est celle de Parme, 1480 ... Celles de Venise, 1483, 1490, 1498, et de Milan, 1500, toutes in-fol., ont peu de valeur.]

1471.

Map of Elephanta in India which Antonello Merciaio has from maestro Maffeo;--there for seven years the earth rises and for seven years it sinks;--Enquire at the stationers about Vitruvius.

1472.

See 'On Ships' Messer Battista, and Frontinus 'On Acqueducts'

[Footnote 2: 2. Vitruvius de Arch., et Frontinus de Aquedoctibus.

Florence, 1513.--This is the earliest edition of Frontinus.--The

note referring to this author thus suggests a solution of the

problem of the date of the Leicester Manuscript.].

[Footnote: Compare No. 1113, 25.]

1473.

Anaxagoras: Every thing proceeds from every thing, and every thing

becomes every thing, and every thing can be turned into every thing

else, because that which exists in the elements is composed of those

elements.

1474.

The Archimedes belonging to the Bishop of Padua.

[Footnote: See No. 1421, 1. 3, 6 and Vol. I, No. 343.]

1475.

Archimedes gave the quadrature of a polygonal figure, but not of the

circle. Hence Archimedes never squared any figure with curved sides.

1174

He squared the circle minus the smallest portion that the intellect can conceive, that is the smallest point visible.

[Footnote: Compare No. 1504.]

1476.

If any man could have discovered the utmost powers of the cannon, in all its various forms and have given such a secret to the Romans, with what rapidity would they have conquered every country and have vanquished every army, and what reward could have been great enough for such a service! Archimedes indeed, although he had greatly damaged the Romans in the siege of Syracuse, nevertheless did not fail of being offered great rewards from these very Romans; and when Syracuse was taken, diligent search was made for Archimedes; and he being found dead greater lamentation was made for him by the Senate and people of Rome than if they had lost all their army; and they did not fail to honour him with burial and with a statue. At their head was Marcus Marcellus. And after the second destruction of Syracuse, the sepulchre of Archimedes was found again by Cato[25], in the ruins of a temple. So Cato had the temple restored and the sepulchre he so highly honoured.... Whence it is written that Cato said that he was not so proud of any thing he had done as of having paid such honour to Archimedes.

[Footnote: Where Leonardo found the statement that Cato had found

and restored the tomb of Archimedes, I do not know. It is a merit that Cicero claims as his own (Tusc. V, 23) and certainly with a full right to it. None of Archimedes' biographers --not even the diligent Mazzucchelli, mentions any version in which Cato is named. It is evidently a slip of the memory on Leonardo's part. Besides, according to the passage in Cicero, the grave was not found 'nelle ruine d'un tempio'--which is highly improbable as relating to a Greek--but in an open spot (H. MULLER-STRUBING).--See too, as to Archimedes, No. 1417.

Leonardo says somewhere in MS. C.A.: Architronito e una macchina di fino rame, invenzion d' Archimede (see 'Saggio', p. 20).]

1477.

Aristotle, Book 3 of the Physics, and Albertus Magnus, and Thomas Aquinas and the others on the rebound of bodies, in the 7th on Physics, on heaven and earth.

1478.

Aristotle says that if a force can move a body a given distance in a given time, the same force will move half the same body twice as far in the same time.

1479.

Aristotle in Book 3 of the Ethics: Man merits praise or blame solely in such matters as lie within his option to do or not to do.

1480.

Aristotle says that every body tends to maintain its nature.

1481.

On the increase of the Nile, a small book by Aristotle. [Footnote: De inundatione Nili, is quoted here and by others as a work of Aristotle. The Greek original is lost, but a Latin version of the beginning exists (Arist. Opp. IV p. 213 ed. Did. Par.).

In his quotations from Aristotle Leonardo possibly refers to one of the following editions: Aristotelis libri IV de coelo et mundo; de anima libri III; libri VIII physi- corum; libri de generatione et corruptione; de sensu et sensato... omnia latine, interprete Averroe, Venetiis 1483 (first Latin edition). There is also a separate edition of Liber de coelo et mundo, dated 1473.]

1482.

Avicenna will have it that soul gives birth to soul as body to body, and each member to itself.

[Footnote: Avicenna, see too No. 1421, 1. 2.] 1483. Avicenna on liquids. 1484. Roger Bacon, done in print. [Footnote: The earliest printed edition known to Brunet of the works of Roger Bacon, is a French translation, which appeared about fourty years after Leonardo's death.] 1485. Cleomedes the philosopher. [Footnote: Cleomede. A Greek mathematician of the IVth century B. C. We have a Cyclic theory of Meteorica by him. His works were not published before Leonardo's death.] 1486.

CORNELIUS CELSUS.

The highest good is wisdom, the chief evil is suffering in the body.

Because, as we are composed of two things, that is soul and body, of

which the first is the better, the body is the inferior; wisdom

belongs to the better part, and the chief evil belongs to the worse

part and is the worst of all. As the best thing of all in the soul

is wisdom, so the worst in the body is suffering. Therefore just as

bodily pain is the chief evil, wisdom is the chief good of the soul,

that is with the wise man; and nothing else can be compared with it.

[Footnote: Aulus Cornelius Celsus, a Roman physician, known as the

Roman Hippocrates, probably contemporary with Augustus. Only his

eight Books 'De Medicina', are preserved. The earliest editions are:

Cornelius Celsus, de medicina libr. VIII., Milan 1481 Venice 1493

and 1497.]

1487.

Demetrius was wont to say that there was no difference between the

speech and words of the foolish and ignorant, and the noises and

rumblings of the wind in an inflated stomach. Nor did he say so

without reason, for he saw no difference between the parts whence

the noise issued; whether their lower parts or their mouth, since

one and the other were of equal use and importance.

[Footnote: Compare Vol. I, No. 10.]

1179

1488.

Maestro Stefano Caponi, a physician, lives at the piscina, and has Euclid De Ponderibus.

1489.

5th Book of Euclid. First definition: a part is a quantity of less magnitude than the greater magnitude when the less is contained a certain number of times in the greater.

A part properly speaking is that which may be multiplied, that is when, being multiplied by a certain number, it forms exactly the whole. A common aggregate part ...

Second definition. A greater magnitude is said to be a multiple of a less, when the greater is measured by the less.

By the first we define the lesser [magnitude] and by the second the greater is defined. A part is spoken

1490.

of in relation to the whole; and all their relations lie between these two extremes, and are called multiples. 1491.

Hippocrates says that the origin of men's sperm derives from the brain, and from the lungs and testicles of our parents, where the final decocture is made, and all the other limbs transmit their substance to this sperm by means of expiration, because there are no channels through which they might come to the sperm.

[Footnote: The works of Hippocrates were printed first after Leonardo's death.]

1492.

Lucretius in his third [book] 'De Rerum Natura'. The hands, nails and teeth were (165) the weapons of ancient man.

They also use for a standard a bunch of grass tied to a pole (167).

[Footnote: Lucretius, de rerum natura libri VI were printed first about 1473, at Verona in 1486, at Brescia in 1495, at Venice in 1500 and in 1515, and at Florence in 1515. The numbers 165 and 167 noted by Leonardo at the end of the two passages seem to indicate pages, but if so, none of the editions just mentioned can here be meant, nor do these numbers refer to the verses in the poems of Lucretius.]

1493.

Ammianus Marcellinus asserts that seven hundred thousand volumes of books were burnt in the siege of Alexandria in the time of Julius Cesar.

[Footnote: Ammiani Marcellini historiarum libri qui extant XIII, published at Rome in 1474.]

1494.

Mondino says that the muscles which raise the toes are in the outward side of the thigh, and he adds that there are no muscles in the back [upper side] of the feet, because nature desired to make them light, so as to move with ease; and if they had been fleshy they would be heavier; and here experience shows ...

[Footnote: "Mundini anatomia. Mundinus, Anothomia (sic). Mundini praestantissimorum doctorum almi studii ticiensis (sic) cura diligentissime emendata. Impressa Papiae per magistrum Antonium de Carfano 1478," in-fol.; ristampata: "Bononiae Johan. de Noerdlingen, 1482," in-fol.; "Padova per Mattheum Cerdonis de Vuindischgretz, 1484," in-40; "Lipsia, 1493," in-40; "Venezia, 1494," in-40 e ivi "1498," con fig. Queste figure per altro non sono, come si e preteso, le prime che fossero introdotte in un trattato di Notamia. Nel 'fasciculus Medicinae' di Giovanni Ketham, che riproduce l''Anatomia' del Mundinus, impresso pure a Venezia da J. e G. de

Gregoriis, 1491, in-fol., contengonsi intagli in legno (si vogliono

disegnati non gia incisi da Andrea Mantegna) di grande dimensione, e

che furono piu volte riprodotti negli anni successivi. Quest'

edizione del "fasciculus" del 1491, sta fra nostri libri e potrebbe

benissimo essere il volume d'Anatomia notato da Leonardo. (G.

D'A.)]

1495.

Of the error of those who practice without knowledge;--[3] See first

the 'Ars poetica' of Horace [5].

[Footnote: A 3-5 are written on the margin at the side of the title

line of the text given, entire as No. 19]

1496.

The heirs of Maestro Giovanni Ghiringallo have the works of

Pelacano.

1497.

The catapult, as we are told by Nonius and Pliny, is a machine

devised by those &c.

[Footnote: Plinius, see No. 946.]

1183

I have found in a history of the Spaniards that in their wars with the English Archimedes of Syracuse who at that time was living at the court of Ecliderides, King of the Cirodastri. And in maritime warfare he ordered that the ships should have tall masts, and that on their tops there should be a spar fixed [Footnote 6: Compare No. 1115.] of 40 feet long and one third of a foot thick. At one end of this was a small grappling iron and at the other a counterpoise; and there was also attached 12 feet of chain; and, at the end of this chain, as much rope as would reach from the chain to the base of the top, where it was fixed with a small rope; from this base it ran down to the bottom of the mast where a very strong spar was attached and to this was fastened the end of the rope. But to go on to the use of his machine; I say that below this grappling iron was a fire [Footnote 14: Compare No. 1128.] which, with tremendous noise, threw down its rays and a shower of burning pitch; which, pouring down on the [enemy's] top, compelled the men who were in it to abandon the top to which the grappling-iron had clung. This was hooked on to the edges of the top and then suddenly the cord attached at the base of the top to support the cord which went from the grappling iron, was cut, giving way and drawing in the enemy's ship; and if the anchor--was cast ...

[Footnote: Archimedes never visited Spain, and the names here

mentioned cannot be explained. Leonardo seems to quote here from a book, perhaps by some questionable mediaeval writer. Prof. C. Justi writes to me from Madrid, that Spanish savants have no knowledge of the sources from which this story may have been derived.]

1499.

Theophrastus on the ebb and flow of the tide, and of eddies, and on water. [Footnote: The Greek philosophers had no opportunity to study the phenomenon of the ebb and flow of the tide and none of them wrote about it. The movement of the waters in the Euripus however was to a few of them a puzzling problem.]

1500.

Tryphon of Alexandria, who spent his life at Apollonia, a city of Albania (163). [Footnote: Tryphon of Alexandria, a Greek Grammarian of the time of Augustus. His treatise TtaOY Aeijecu appeared first at Milan in 1476, in Constantin Laskaris's Greek Grammar.]

1501.

Messer Vincenzio Aliprando, who lives near the Inn of the Bear, has Giacomo Andrea's Vitruvius.

1502.

Vitruvius says that small models are of no avail for ascertaining the effects of large ones; and I here propose to prove that this conclusion is a false one. And chiefly by bringing forward the very same argument which led him to this conclusion; that is, by an experiment with an auger. For he proves that if a man, by a certain exertion of strength, makes a hole of a given diameter, and afterwards another hole of double the diameter, this cannot be made with only double the exertion of the man's strength, but needs much more. To this it may very well be answered that an auger

1503.

of double the diameter cannot be moved by double the exertion, because the superficies of a body of the same form but twice as large has four times the extent of the superficies of the smaller, as is shown in the two figures a and n.

1504.

OF SQUARING THE CIRCLE, AND WHO IT WAS THAT FIRST DISCOVERED IT BY

ACCIDENT.

Vitruvius, measuring miles by means of the repeated revolutions of the wheels which move vehicles, extended over many Stadia the lines of the circumferences of the circles of these wheels. He became aware of them by the animals that moved the vehicles. But he did not discern that this was a means of finding a square equal to a circle. This was first done by Archimedes of Syracuse, who by multiplying the second diameter of a circle by half its circumference produced a rectangular quadrilateral equal figure to the circle [Footnote 10: Compare No. 1475.].

[Footnote: Vitruvius, see also Nos. 1113 and 343.]

1505.

Virgil says that a blank shield is devoid of merit because among the people of Athens the true recognition confirmed by testimonies ...

[Footnote: The end of the text cannot be deciphered.]

1506.

In Vitolone there are 805 conclusions [problems] in perspective.

[Footnote: (Witelo, Vitellion, Vitellion) Vitellione. E da vedersi su questo ottico prospettico del secolo XIII Luca Pacioli, Paolo Lomazzo, Leonardo da Vinci, ecc. e fra i moderni il Graesse, il Libri, il Brunet, e le Memorie pubblicate dal principe Boncompagni, e 'Sur l' orthographe du nom et sur la patrie de Witelo (Vitellion)

note de Maximilien Curtze, professeur a Thorn', ove sono descritti i molti codici esistenti nelle biblioteche d' Europa. Bernardino Baldi nelle sue 'Vite de'matematici', manoscritto presso il principe
Boncompagni, ha una biografia del Vitellione. Questo scritto del Baldi reca la data 25 agosto 1588. Discorsero poi di lui Federigo Risnerio e Giovanni di Monteregio nella prefazione dell' Alfagrano, Giovanni Boteone, Girolamo Cardano, 'De subtilitate', che nota gli errori di Vitellione. Visse, secondo il Baldi, intorno all' anno 1269, ma secondo il Reinoldo fioriva nel 1299, avendo dedicata la sua opera ad un frate Guglielmo di Monteca, che visse di que' tempi.

Intorno ad un manoscritto dell' ottica di Vitellione, citato da Luca Pacioli v'ha un secondo esemplare del Kurlz, con aggiunte del principe Boncompagni, e le illustrazioni del cav. Enrico Narducci. Nel 'Catalogo di manoscritti' posseduti da D. Baldassare de' principi Boncompagni, compilato da esso Narducci, Roma, 1862, sotto al n. 358, troviamo citato: Vitellio, 'Perspectiva', manoscritto del secolo XIV. La 'Prospettiva di Vitelleone' (sic) Thuringo-poloni e citata due volte da Paolo Lomazzo nel Trattato dell' arte della pittura. Vitellio o Vitello o Witelo. Il suo libro fu impresso in foglio a Norimberga nel 1535; la secondo edizione e del 1551, sempre di Norimberga, ed una terza di Basilea, 1572. (See Indagini Storiche ... sulla Libreria-Visconteo-Sforzesca del Castello di Pavia ... per cura di G. D'A., Milano 1879. P. I. Appendice p. 113. 114).]

1507.

Vitolone, at Saint Mark's.

[Footnote: Altro codice di cotesta 'Prospettiva' del Vitolone troviamo notato nel 'Canone bibliographico di Nicolo V', conservato alla, Magliabecchiana, in copia dell' originale verosimilmente inviato dal Parentucelli a Cosimo de' Medici (Magliab. cod. segn. 1 VII, 30 carte da 193 a 198). Proviene dal Convento di San Marco e lo aveva trascritto frate Leonardo Scruberti fiorentino, dell' ordine dei predicatori che fu anche bibliotecario della Medicea pubblica in San Marco (See Indagini Storiche ... per cura di G. D'A. Parte I, p. 97).]

1508.

How this proposition of Xenophon is false.

If you take away unequal quantities from unequal quantities, but in the same proportion, &c. [Footnote: Xenophon's works were published several times during Leonardo's lifetime.]

Inventories and accounts (1509--1545).

1509.

On the 28th day of April I received from the Marchesino 103 lire and 12 dinari. [Footnote: Instead of the indication of the year there is a blank space after d'aprile.--Marchesino Stange was one of Lodovico il Moro's officials.--Compare No. 1388.]

1510.

On the 10th day of July 1492 in 135

Rhenish florins 1. 445

in dinari of 6 soldi 1. 112 S 16

in dinari of 5 1/2 soldi 1. 29 S 13

9 in gold and 3 scudi 1. 53

-----

1. 811 in all

1511.

On the first day of February, lire 1200.

1512.

The hall towards the court is 126 paces long and 27 braccia wide.

1513.

The narrow cornice above the hall lire 30.

The cornice beneath that, being one for each picture, lire 7, and for the cost of blue, gold, white, plaster, indigo and glue 3 lire; time 3 days.

The pictures below these mouldings with their pilasters, 12 lire each.

I calculate the cost for smalt, blue and gold and other colours at 1/2 lire.

The days I calculate at 3, for the invention of the composition, pilasters and other things.

1514.

Item for each vault 7 lire

outlay for blue and gold 3 1/2

time, 4 days

for the windows  $1 \frac{1}{2}$ 

The cornice below the windows 16 soldi per braccio

item for 24 pictures of Roman history 14 lire each The philosophers 10 lire the pilasters, one ounce of blue 10 soldi for gold 15 soldi Total 2 and 1/2 lire. 1515. The cornice above lire 30 The cornice below lire 7 The compositions, one with another lire 131516. Salai, 6 lire ... 4 soldi ... 10 soldi for a chain;--On the 14th of March I had 13 lire S. 4; 16 lire remain. 1517.

How many braccia high is the level of the walls?
123 braccia
How large is the hall?
How large is the garland?
30 ducats.
On the 29th day of January, 1494
cloth for hose lire 4 S 3
lining S 16
making S 8
to Salai S 3
a jasper ring S 13
a sparkling stone S 11
to Caterina S 10

to Caterina S 10
1518.
The wheel lire 7
the tire lire 10
the shield lire 4
the cushion lire 8
the ends of the axle-tree lire 2
bed and frame lire 30
conduit lire 10
S.K.M.II.2 4a]
1519.
Parsley 10 parts
mint 1 part

thyme 1 part

Vinegar ... and a little salt two pieces of canvas for Salai.

[Footnote: This note, of about the year 1494, is the earliest mention of Salai, and the last is of the year 1513 (see No. 1465, 3). From the various notes in the MSS. he seems to have been Leonardo's assistant and keeper only, and scarcely himself a painter. At any rate no signed or otherwise authenticated picture by him is known to exist. Vasari speaks somewhat doubtfully on this point.]

1520.

On Tuesday I bought wine for morning [drinking]; on Friday the 4th day of September the same.

[Footnote: This note enables us to fix the date of the Manuscript, in which it is to be found. In 1495 the 4th of September fell on a Friday; the contents of the Manuscript do not permit us to assign it to a much earlier or later date (Compare No. 1522, and Note).]

1521.

The cistern ... at the Hospital, --2 ducats, --beans, --white maize, --red maize, --millet, --buckwheat, --kidney beans, --beans, --peas.

1522.

## EXPENSES OF THE INTERMENT OF CATERINA.

For the 3 lbs of tapers 27 S

For the bier 8 S

A pall over the bier 12 S

For bearing and placing the cross 4 S

For bearing the body 8 S

For 4 priests and 4 clerks 20 S

Bell, book and sponge 2 S

For the gravediggers 16 S

To the senior 8 S

For a license from the authorities 1 S

106 S

The doctor 2 S

Sugar and candles 12 S

120 S

[Footnote: See Nos. 1384 and 1517.]

1523.

Salai's cloak, the 4th of April 1497.

4 braccia of silver cloth l. 15 S 4

green velvet to trim it 1. 9 S --

binding 1.-- S 9

loops 1.-- S 12

the making l. 1 S 5

binding for the front l.-- S 5

stitching

here are 13 grossoni of his 1. 26 S 5

Salai stole the soldi.

1524.

On Monday I bought 4 braccia of cloth lire 13 S 14 1/2 on the 17th of, October 1497.

1525.

Memorandum. That on the 8th day of April 1503, I, Leonardo da Vinci, lent to Vante, miniature painter 4 gold ducats, in gold. Salai carried them to him and gave them into his own hand, and he said he would repay within the space of 40 days.

Memorandum. That on the same day I paid to Salai 3 gold ducats which he said he wanted for a pair of rose-coloured hose with their trimming; and there remain 9 ducats due to him--excepting that he owes me 20 ducats, that is 17 I lent him at Milan, and 3 at Venice.

Memorandum. That I gave Salai 21 braccia of cloth to make a shirt, at 10 soldi the braccio, which I gave him on the 20th day of April 1503.

[Footnote: With regard to Vante or Attavante, the miniature painter (not Nanni as I formerly deciphered this name, which is difficult to read; see Zeitschrift fur Bild. Kunst, 1879, p. 155), and Vasari, Lives of Frate Giovanni da Fiesole, of Bartolommeo della Gatta, and of Gherardo, miniatore. He, like Leonardo, was one of the committee of artists who, in 1503, considered the erection and placing of Michel Angelo's David. The date of his death is not known; he was of the same age as Leonardo. Further details will be found in 'Notizie di Attavante miniatore, e di alcuni suoi lavori' (Milanese's ed. of Vasari, III, 231-235).]

1526.

On the morning of San Peter's day, June 29th, 1504, I took io ducats, of which I gave one to Tommaso my servant to spend.

On Monday morning 1 florin to Salai to spend on the house.

On Thursday I took 1 florin for my own spending.

Wednesday evening 1 florin to Tommaso, before supper.

Saturday morning 1 florin to Tommaso. Monday morning 1 florin less 10 soldi. Thursday to Salai 1 florin less 10 soldi. For a jerkin, 1 florin. For a jerkin And a cap 2 florins. To the hosier, 1 florin. To Salai, 1 florin. Friday morning, the 19th of July, 1 florin, less 6 soldi. I have 7 fl. left, and 22 in the box. Tuesday, the 23th day of July, 1 florin to Tommaso. Monday morning, to Tommaso 1 florin. [Wednesday morning 1 fl. to Tommaso.]

Sunday, the 4th of August, 1 florin.

Friday, the 9th day of August 1504, I took 10 ducats out of the box.

1527.

1504. On the 9th day of August, 1504, I took 10 florins in gold[2] ... [3] on Friday the 9th day of August fifteen grossoni that is fl. 5 S 5 ... given to me 1 florin in gold on the 12th day of August [4] ... on the 14th of August, 32 grossoni to Tommaso. On the 18th of the same 5 grossoni to Salai. On the 8th of September 6 grossoni to the workman to spend; that is on the day of our Lady's birth. On the 16th day of September I gave 4 grossoni to Tommaso: on a Sunday.

[Footnote: In the original, the passage given as No. 1463 is written between lines 2 and 3 of this text, and it is possible that the entries in lines 3 and 4 refer to the payments of Jacopo Tedesco, who is there mentioned. The first words of these lines are very illegible.]

[Footnote 7: Al fattore. Il Fattore, was, as is well known, the nick-name of Giovanni Franceso Penni, born in Florence in 1486, and subsequently a pupil of Raphael's. According to Vasari he was known by it even as a boy. Whether he is spoken of in this passage, or whether the word Fattore should be translated literally, I will not undertake to decide. The latter seems to me more probably right.]