



Assaying *Il Saggiatore*, with a delicate and precise bibliographical balance

Jason W. Dean, Nick Wilding

Linda Hall Library, deanj@lindahall.org; Georgia State University, nwilding@gsu.edu

Abstract

Il Saggiatore is bibliographically more complex than it might seem at first sight: copies can vary wildly in their parts and materials. The first edition has been repeatedly misdescribed in the book trade, with a fictitious “first issue” claiming chronological and monetary priority. The authors examine both a wide sample of copies and all the available supplementary documentation to establish the most useful way to describe and understand individual copies, and the entire edition, of this book.

Keywords

Assayer (Il Saggiatore), bibliography, Giacomo Mascardi, watermarks

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For a book claiming the status and function of a precision instrument, *Il Saggiatore* managed to break a lot of rules and, despite its initial success, to inflict catastrophic damage upon its author. Generically, it presented personal marginalia in the form of a private letter in a published book; rhetorically, it uncivilly insulted both the overt object of its scorn, the non-existent Lothario Sarsi, and humiliated the covert Orazio Grassi; scientifically, its critiques were largely destructive; philosophically, it is frivolously audacious; theologically, it is provocatively heretical and was understood by some readers to endorse atomism. The reception of the first edition, though, is beyond the scope of this essay; instead, we wish to bring attention to its printing and publication. As a material object *Il Saggiatore* seems quite straightforward: an engraved title-page, an imprimatur, a dedicatory letter, an authorial portrait, commendatory verses, the text with diagrams, errata. It is stable, fixed, contained; bibliographers have constructed a neat hierarchy of four issues, each easily identifiable. The baroque excess of content would seem to be at odds with the sombre material form.

This essay will instead argue that as a physical book *Il Saggiatore* has been seriously misunderstood; that historians, librarians, dealers and collectors have had to rely on a fundamentally mistaken set of categories to describe it; and that a reintegration of material evidence within its documentary context casts light not only on its production but also its early reception, and demonstrates that we have barely begun to understand this book.

*Bibliographical description*¹

We begin with a bibliographical description of an ideal copy of *il Saggiatore*, with a following examination of its component bibliographical parts.

Ideal Copy, first edition

The following description is the closest printed manifestation of Galileo's intentions with the book.

IL SAGGIATORE | Nel quale | Con bilancia esquisita e giusta | si ponderano le cose contenute | nella | LIBRA ASTRONOMICA E FILOSOFICA | DI LOTARIO SARSI SIGENSANO | Scritto in forma di lettera | All' Ill.^{mo} Rev.^{mo} Mons.^{re} D | Virginio Cesarini | Acc.^o Linceo Nobile Fiorentino | Filosofo e Matematico Primario | del | Ser.^{mo} Gran Duca di Toscana.

COLLATION: 4^o (mezzana paper): $\pi^2 2\pi^1 a^4 A^4 (\pm 1.4) B-Ee^4 Ff^6$; [Gg²]

CONTENTS: π : 1r engraved title; 1v Imprimatur (Rome. 2 February 1623); 2r-v: dedi-

¹ Our arguments in this article are based on the 26 copies examined, therefore our assertions are based solely on those copies, and though they provide important insight and trends, they are not wholly conclusive of the entire print run until the authors and others can see a far greater number of copies of the print run of 600, see note 55.

cation to Urban VIII by the Accademici Lincei, Rome, 20 October 1623) || χ : engraved portrait of Galileo, verso blank || a (commendatory verses of Joannes Faber, Francesco Stelluti) || A-Z Aa-Ff: text, paginated 1-236 || Gg: *Nota di errori occorsi nello stampare* (Gg1v blank)

TYPOGRAPHY AND LAYOUT: 36 text lines + headline with running title and page number + signature (A, A2; B, B2 ...) / catchword line, catchwords on every page. 173 (181) × 110 mm. Types: roman (for Italian), italic (for Latin), both 20 li. = 96 mm.

NON-LETTERPRESS MATERIAL: engraved title-page within architectural border, the arms of Urban VIII in the upper panel held by two putti, the Lincei device (Lynx surrounded by laurel branches, topped by a crown) in the lower. Female figure holding a book and a sphere of the night sky, titled FILOSOFIA NATVRALE in the left panel, and a female figure wearing a crown, holding an armillary sphere and a compass, titled MATEMATICA in the right panel, plate dimensions 184 × 133 mm; engraved Galileo portrait: 202 × 153 mm, both signed F. Villomena.

Vignette engraved diagrams separately impressed in spaces reserved by the compositor on pp. 22, 41, 114 (3), 118, 120, 130, 132, 157, 161, 163 (2), 164 (2), 204, 205, 217. NB: p. 120, vignette with cancel in correct orientation.

We now turn to the book's component bibliographic units, introduced here as a list, and taken one by one below:

- Frontmatter unsigned preliminary gathering designated here as ' π '
- Portrait, described as ' 2π '
- Introductory poems, gathering 'a'
- Body 1-236, A-Ee4 Ff6
- Errata
 - Errori 236, Ff6 verso
 - Nota 237-[240], Ff6 [Gg]²
 - Tavola 236, Ff6 verso

Frontmatter

This unit, comprising unsigned preliminary gathering π , includes the engraved title-page. Following the title-page is the license to print (p. [2], π 1 verso), as well as the dedication to Pope Urban VIII (p. [3-4], π 2 recto and verso).

Portrait

The engraved portrait, signed "F. Villamoena Fecit." is found between either π or 'a', or 'a' and A, depending upon the copy.² Dimensions of the plate (203x155 mm) and incidental

² The portrait and the engraved title-page are the two full-page engravings in the book. The body

scratches are identical to that of the 1613 *Istoria*, indicating that Francesco Villamena (or Mascardi) retained the engraved portrait and merely added his name to the plate before printing a second run for *Il Saggiatore*.³ These portraits are mounted on a stub in the location noted above. Most, but not all copies examined, have the portrait, while others have only the remaining stub. Also observed are copies with the *Istoria* portrait inserted, rather than the signed portrait; these are likely sophisticated copies. The portrait is printed on paper with a different watermark from the other text associated paper stocks, in copies examined, a six-pointed star and the paper is oriented perpendicular to the rest of the book, with chain lines vertical; the octavo sheets upon which the portraits were printed were larger than those used for the rest of the book and would have been printed in a different location to the main body of the book.

Introductory Poems

This is the first major point of variance among copies. This gathering's inclusion is seemingly at random, present in some copies, and not in others, though possibly with a higher incidence of absence in fine paper copies. It is both present and absent in the authoritative Galilean presentation copies (see below). The signing of the poems' signature with a lower-case 'a' indicates they were intended by their creator to be included in the book, and are signed as such to indicate their position to the binder of the book. The 'a' signature also has catchwords, with the "IL" on the verso of a4, showing that the creator of these verses clearly indicated their intended position in the book. The inclusion or exclusion of the poems creates two issues of the book.

Body

The body and the frontmatter are the two constant units in the book. However, the body has one point of variance: Mascardi's pressmen, or whoever printed the intaglio plates, inverted the diagram on p. 120 (P4 verso). This was corrected with a cancel diagram pasted in many, but not all, copies. The inverted diagram is not mentioned in any of the three errata. As discussed elsewhere, the watermarks in this unit vary, a result of the paper stocks at hand in Mascardi's shop, the largest in Rome at the time. The body also has a bifolium cancel (A1.4), resulting from a change in Virginio Cesarini's status in the Vatican, discussed below. The addition or lack of the cancel diagram creates two states of p. 120.

of the book is illustrated with 20 engravings, printed on the same sheets as letterpress. Due to the varying location for the portrait, its accompanying stub can be seen in several places. For example, in the Magl. 3.2.406 copy in Florence, the stub follows the portrait, but in Oklahoma's copy (the non-Drake copy), the stub is between gatherings a and A.

³ Zeitlin, "Some Points", 193, claims that the portrait in *Il Saggiatore* is a copy of that in the *Istoria*, but this is not the case.

Errata

This final unit is the most complicated of the object, and has three possible variations, one of which is an intended cancel and insertion, and one of which is a second state of signature Ff. These errors arose from Galileo's inability to supervise the work of Mascardi's press in Rome from Florence, as well as from the pace of printing and the choice of editor. Indeed, Virginio Cesarini notes in a letter dated 28th October 1623, to Galileo that "the printing of your book is finished with as much accuracy as the speed of its printing would allow".⁴

- "Errori" – This is the first state of Ff. Mascardi included a list of printed errors in the book, which he titled *Errori occorfi nello stampare di maggio confideratione*, and lists 16 errors on the verso of Ff6 in two columns. Upon receipt of the first complete copy of the book, Galileo was appalled at the editorial sloppiness of the finished book.⁵ In response, Galileo created and caused to be printed in Florence the following item (Fig. 1).
- "Nota" – By the 18th of November, Galileo completed his edits to the printed text, and caused the "Nota di errori occorfi nello stampare" to be printed. The "Nota" lists 209 errors in two columns Galileo discovered in the text, and is the best printed representation of Galileo's intentions with the book. The "Nota" is a half sheet, and as such is an unsigned signature [Gg] in two leaves. It is printed only on the lower half of the recto of the first leaf [Gg]1 and on the recto and verso of the second leaf [Gg]2. We can surmise that the recto printing on the first leaf was intended by Galileo to be cut down and pasted as a cancel for the *Errori*, covering the much shorter errata, and continuing on the recto and verso of the following leaf. However, in some copies, the half sheet is simply tipped in or inserted after Ff6, presenting the reader with two errata. We have not been able to examine the watermarks of any of the "Nota" sheets, but as this was printed in Florence, and sent out with the copies of *Saggiatore* Galileo received, we would not expect them to match any of Mascardi's paper stocks used in the printing of the book. The type used in the Florentine errata, especially the swash Italic 'N' in 'Nota', matches that used by Pietro Ceconcelli, the printer of Guiducci's *Discorso delle comete* (1619), who adopted Medicean Stars as the name of his business.⁶ It is worth noting that these printed "Nota" quite often contain additional manuscript errata, in what appears to be Galileo's hand. Galileo also inserted some marginal corrections directly into the text in some copies. Collation for copies with the "Nota" should be,

⁴ OG, XIII, 141-142.

⁵ Copies with the "Errori" should have Ff6 as the final gathering.

⁶ See, for example, *Il parto della Vergine* by Giovanni Battista Calamai (Pietro Ceconcelli, Florence, 1623), +6v, for two similar swash 'N's.

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IL SAGGIATORE

le quali tutte io aueuo fatto pensiero (& era in contracambio del catalogo del Sarfi, di registrar nominatamente in questo luogo; mà postomi all'impresa, mi è mancato, e l'animo, e le forze, vedendo, che mi faria stato bisogno trascriuer di nuouo, poco meno, che l'intero trattato del Sig. Mario. Però per minor tedio di V. S. Illustrissima, e mio, hò risoluto più tosto di rimetterla ad vn altra lettura di quello stesso trattato.

IL FINE.

Errori occorsi nello stampare di maggior consideratione.

Car. Ver.	Errori	Correttioni.	Car. Ver.	Errori	Correttioni.		
13	1	pertanto	tanco	101	13	Oriente	Orizzonte
15	5	proposito	sproposito	107	10	al	del
26	6	politi	spoliti	129	31	per poter	poter
29	16	rele	reale	147	27	scrittura	scrittura
41	9	rotte	rette	151	6	finuosa	finuosa
57	19	falissimo	fallissimo	154	20	che essendo	essendo
74	13	Sutteri	sutteni	218	34	la oia	la cosa
86	4	detto	veduto	218	35	chiamatoc	chiamato



Fig. 1 – Verso of Ff, the “Errori”. Courtesy of Linda Hall Library of Science, Engineering & Technology.

157 16	Aequatore	Aequatore mto	174 34	A pup	te par
159 33	nedum	do inausuri,	175 11	atque, che	, ziretoche
160 19	conecta	pedum	177 11	de i corpi	. Dei corpi
161 12	nos	comere	182 3	icrete	formo
161 31	di questi	non solo	182 6	Laddur	, Laddur
165 19	pup	quelli	182 8	credazo	, e credazo
165 15	formalmente	jis	183 11	venzo nel	venozial
167 15	accedat	finalmente	185 19	Babilione	Babilon
168 19	periclitissima	accedam	187 3	letterati e	letteratie
	decoratur	figura perfo-	189 13	pio nio ma	pio nio ma
		clina debet	190 11	legu	leguo
		tar.	191 4	latis	fatis
168 19	arendam	dicendam	194 5	Lalcerò	lalcerò
169 8	qua	qua	197 17	rimedio	rimedio
170 16	refe	prefe	198 11	taqzani	taqzani
170 19	e dico	edico	198 35	veloci,	veloci.
170 18	deff	duff	199 8	folgono, e	folgono, e
171 18	di momento	di momento	199 33	nalo, come	nalo. Et come
		ia momento	200 25	ola	e la
172 9	fano prima il	fano prima il	200 39	corpi de	corpi de
	coeca o.e. afro	coeca o.e. afro	200 38	rifolabili ma	rifolabili, Ma
174 23	disparituro	de superiore	201 3	fo lanza e	folanra, e
		tebroffo pers-	201 36	ciparione	eciparione
		che quido fol-	202 23	opaco;	opaco; perpi-
		fero di super-			cui eai qua
		ficie	203 13	filum	filum
174 24	efi	& efi	210 18	illuminaffio	illuminaffio
175 7	visuo	viao	216 2	e con	(e con
175 24	nell	nell	216 3	fo, ra	fo, ra
175 31	riempifcono	riempifero	216 5	fiacola	fiacola
175 36	da	coa	218 34	ola	ola
177 23	mittum	mittum	221 19	experimenta	experimenta
178 7	que ia	questo	225 19	concludente	concludente
179 13	fofuerfi	fofuerfi	225 7	noa	noa
179 13	noa e	noa e	225 22	dico	dico
179 16	riueare	riueare	227 11	fioghi	fioghi
180 10	faffi?	faffi	230 26	partes	partes
180 19	che ne	che ne	231 33	vocaciffimi	vocaciffimi
181 19	otro	otro	231 9	capu	capu
181 35	papyro	e papyro	231 10	exerint	exerint
182 19	exiguam	exiguam	232 10	fala	fala
182 16	apertu	apertu	232 16	iffum	iffum
182 9	dutare:	e dilatare	233 1	quetelam	quetelam
186 18	e	e			
186 11	ferma	ferma			
173 10	lorie	se torie			
174 1	verbera	verbera			
174 10	ialari	ialari			

Nota dierrori occorfi nello stampare.

Perche frequentemente si legge, concludere, conchiuere, declinare, declinazione, inclinare, inclinazione, & altri lor deriuatiui; & in oltre, produrre, riputare, & riputo, Ticone, che sono errori nella lingua Toscana, si emenderanno per tutto in, concludere, conclusione, declinare, declinazione, inclinare, inclinazione, produrre, & riputare, riputo, Ticone.

Car. Ver.	Errori	Correttioni	Car. Ver.	Errori	Correttioni
2	28	quelli	26	16	polli
2	28	ellere	17	37	dubbiazione
2	28	abbatui	29	16	rete
4	26	equiffatame	30	18	conueniet
		terecta.	31	1	prometta
6	3	noti, & vien	31	29	noo, perche
		noti: vien	35	26	coetam
9	3	magiore. Mi	35	26	coetam
		magiore, mi	36	10	rimouera
11	11	parie	41	15	BA
13	11	preferia	38	15	fatta
17	35	propofito	39	10	circofianza
18	15	quatra	41	15	BA
18	10	opuione, lo	41	9	rotte
19	24	generale, ma	41	11	alia
		generale, Ma	43	9	fi
21	10	Agapocio	43	27	fatto; sopra
22	12	e per	44	8	hoc
23	23	ci quito, ne	46	4	ne
		quello 40.	46	23	idem

non

48 15	non	nd	81 20	vede, va	vede, uiamme
48 1	liceruo fo-	liceruo fo-			va
	re;	re;	82 23	non dela	non dela
49 18	fupponiamo	fappiamo	84 31	molto	molto
49 36	non ter	pet non	86 12	ha detto	dicte
50 19	terzo, terzo	terzo. Terzo	86 7	ch'io lo	che
50 11	F vo	tevo	86 21	della	della
51 31	iffaggi, che	iffaggi, quelli,	92 26	mittum	mittum
	che	che	90 29	Act	Act
52 34	iffinger	iffingerfi	91 31	coneta, l'	coneta, l'
53 7	iffira	iffira	95 25	percoffos	percoffos
53 11	dicat	elli	94 31	leguando	leguando
54 21	iffello	quello	97 33	fi cie?	fi cie
54 24	iffimane	iffimane	96 8	dite m nar	dite m nar
55 19	iffioni	iffione	97 27	ifferna	ifferna
56 27	oggetti di	oggetti, di	97 36	che fia	che non fia
56 33	iffedi	iffedia	99 18	modo fe	modo, cie fe
57 14	angolo, veffio-	angolo, veffio-	99 24	ma tutto il	ma tutto il
	ma	ma	101 13	Oriente	Oriente
57 18	finalmente e	finalmente ve-	102 37	grandezza, ma	grandezza, ma
		fficia e	102 1	vero nelle	vero, nelle
58 34	luminolo fa	luminolo, & il	106 9	lo	la
		luminolo, & il	105 16	fabio che	fabio
		luminolo, & il	108 11	parere	parere
59 24	ac	ac minus	109 10	iffuano	iffuano
61 21	fròdolenti	per fròdolente	109 18	iffuati	iffuati
62 15	ne pa	ne pa fu	110 11	iffuati	iffuati
65 15	fuo Signore	cinquante;	114 3	obietique	obietique
65 31	è quello	A quello	112 33	iffem	ergoiffem
66 27	conacchione	conacchione	116 14	che voglia	che voglia
68 4	ffcora	ffcora	117 21	Tattaua	Tattaua
68 6	per io	per non lo	117 27	e	e
68 11	addro	dicere	118 27	mula, v. g. ci e	mula v. g. ci ve
68 16	maggiore coll'	maggiore, che		vede	de.
		coll'	121 10	non auere	non auere
69 18	molti	molto	121 2	ff conere	ff cum conere
71 30	iffarmarmare	riffarmare	123 30	della	della
72 1	e per	e per	123 7	denferriffimo	denferriffimo
72 20	della	dolo			
72 21	d'vno e mezzo	d'vno mezzo	128 21	vero	vero
73 23	corpulente	corpulenti	128 27	Qua che	? quacite
74 13	iffuati	iffuati	123 23	iffuati	iffuati
74 23	della	della	128 90	conclua	conclua
74 31	cento e	cento e	129 31	per poter	poter
75 1	24 di	24 di rooboo a	129 33	del	del
		quel di	130 33	locus	& locus
76 11	non e	e	133 33	della	della
76 6	iffeniffimete	iffeniffimete	133 13	delle	delle
	vedute	vedute	135 11	tra	tra
80 3	che	atroc che	137 3	efferie	efferie
80 5	toatimete veg	toatimete.	137 4	macchia	macchia
	ge	Veggio	137 15	macchia	macchia
81 12	ffollor	ffollor	137 34	ffalari	ffalari

Ac

Fig. 2 – “Nota”, comprises signature [Gg]. The Thomas Fisher Rare Book Library, University of Toronto.

as noted above, 4^0 (mezzana paper) : $\pi^4 2\pi^1 a^4 A^4 (\pm 1.4) B-Ee^4 Ff^6 [Gg^2]^7$, and the presence or absence of the “Nota” two issues for the book (Fig. 2).

- “Tavola” – The *tavola*, titled “Tauola degli errori occorrfi nello ftampare”, is a second state of Ff, observed as a single leaf cancel for Ff6. Cesarini ordered the “Tavola” to be printed in Rome by Mascardi’s press, as its inclusion required a re-setting of the type for the recto and verso of Ff6 (p. 236). In doing so, he accepted some of Tomasso Stigliani’s editorial claims, and cut Galileo’s list down to 136 errors in three columns, which appears on the verso of Ff6. The first state of Ff6 recto has 36 lines of type, and the second state has 37 lines of type. Two copies with the “Tavola” were examined for this article, one at the Thomas Fisher Library at the University of Toronto, and one at the Bancroft Library at the University of California, Berkeley; copies with the “Tavola” are rare in our sample set. The cancellans leaf was printed by Mascardi: ornaments at the bottom of Ff6v match those in other Mascardi imprints from 1623;⁸ the paper is also the same as that used to print gathering π , the final sheet to be printed. Copies with the *Tavola* will collate as 4^0 (mezzana paper) : $\pi^4 2\pi^1 a^4 A^4 (\pm 1.4) B-Ee^4 Ff^6 (\pm 6)$. The presence or absence of the *tavola* creates two states of Ff (Fig. 3).

How the book came to be: from Comet book to Saggiatore

Il Saggiatore was written, printed, and published by a committee for a court. Every element of it, from text to format to modern day distribution, is predicated on this fact. We will start by combing the lush documentation of Galileo’s correspondence for evidence of the divisions of labour, social dynamics and technological networks that made this book. We will then undertake a bibliographical examination of a sample from the first edition. By integrating these two sources, we seek to construct a tool for analyzing and understanding individual copies.

Disputes arising from observations and interpretations of three comets in 1618 were also disputes about natural philosophical authorship. Anonymous, pseudonymous, corporate and onymous publications sought to lay claim to unassailable epistemological positions. One does not have to believe that comets presaged disaster to note that this fraught debate on cometology and cosmology took place as Europe transitioned into three decades of unprecedented levels of espionage, propaganda, and war.⁹

⁷ Of course, use of Tanselle and Bowers’ principles for collation formulas should be applied as needed. Take, for example, the University College, London, copy, with the first leaf of the half-sheet *Nota* pasted over the *Errori*, as was likely intended. In this case, the final signature should be described as $[Gg^2](-[Gg1])$.

⁸ See, for example, the printer’s ornaments at the base of p. 2 of Raffaele Aversa’s *Logica institutionibus praeuijs quaestionibus contexta*.

⁹ For a general framework, see Biagioli and Galison, *Scientific Authorship*.

Tauola degli Errori occorsi nello stampare.

Car. Ver. Errori. Correzioni.	Car. Ver. Errori. Correzioni.	Car. Ver. Errori. Correzioni.
2 28 questi queste.	81 12 follor fallor.	150 26 refe prese.
2 28 essere esseri.	83 20 vede, vn vede, auia.	150 36 dell' dall'.
2 28 abbartuti abbarture.		151 18 di momento di momento
4 16 esquisitamēte esquisitamēte recta.	84 22 non della non dalla.	151 22 di superf. di superficie
31 11 purse pur fi.	84 35 molto molti.	
13 21 presfrita deferita.	86 30 hà dex. la diè.	154 24 esi ed esi.
15 25 proposito sproposito.	4 to	155 7 visuo viuo.
22 20 Agapocio Agecio.	86 7 ch'io lo ch'egli lo.	155 14 nell' nel l'.
24 15 e per o per.	96 21 della dalla.	155 35 rièpièsono rièpièsero.
25 31 40. quello 40.	96 26 nimirum mirum.	155 36 da con.
27 27 dubitazione dimoftrazione	90 29 Aer Aeri.	157 27 mirum non mirum.
29 16 reie reale.	92 22 percuffos repercuffos.	158 27 questi questo.
31 18 conueniret conuenirent.	94 31 segnando reale.	159 12 forenerfi fofterferfi.
31 1 promeffa promoffa.	97 36 che fia che non fia.	159 13 non è n'è.
35 26 celerium celerimum.	99 18 modo fe modo, che fe.	159 16 rileuare rileuate.
36 30 rimouerla rimouerio.	101 13 Oriente Orizonte.	160 19 che ac cene.
38 15 fatta fatto.	106 26 subito che subito.	161 19 orno torno.
39 10 circofianza inconfianza.	108 21 parere patere	161 35 papyro è papyo.
41 15 B A D A.	114 3 obfenti que obfequentiq.	162 36 apercis apercius.
41 9 rotte recte.	115 33 ijdem ergo ijdem.	164 9 diffaret diffarent.
48 15 non noi.	116 14 che fi voglia che voglia.	164 15 ferma fermo.
49 36 non per per non.	117 27 e a	172 20 forte è forte.
5 34 riftringer riftringerfi.	125 2 fi come fi cum come	174 2 verbera verbera.
53 7 l'altra altera.	te te	174 30 indurfi ridurfi.
54 32 di chi chi.	125 30 della dalla.	174 34 o pur e pur.
54 21 quello quelle.	127 1 deffideratif. deffideroffi	182 8 credato, e creduto.
54 24 totalmente folamente.	fimo mo.	190 21 fegni figno.
55 28 lucidi lucida.	128 21 verfo vero.	191 4 latis fatis.
57 18 finalmente finalmete ve	128 30 conchiuda conchiude.	192 33 nafo, come nafo. B come
è rifsima e.	129 31 per poter poter.	202 32 opaco opaco; perfi
58 34 luminoso, ed il mezzo più luminoso fa.	129 33 del dal	cum enim qua.
59 24 ac ac minus.	130 33 locus & locus.	205 12 filum filum.
60 15 nè più nè più fu.	133 35 della debba.	216 3 fopra furger.
65 25 fuo figno. re cinquantacinque.	135 31 trà ora	218 34 ofa cola.
66 27 contractione contractione.	137 3 effere efferie.	221 29 experimētū experi mētis.
68 6 per lo per non lo.	137 4 macchia macchina.	225 7 nota noto.
68 24 fcorza fcora.	137 12 macchia macchina.	226 22 dice dico.
68 26 maggiore coll' maggiore che coll'.	137 34 falari falarii.	227 21 fanghi fanghi.
69 18 molti molto.	137 36 Aequatore Aequatore	227 21 partes parte.
71 30 ifparmiar. mare rifparmiar. re.	modo in. Aultrum.	232 33 volaciffimi voraciffimi.
72 20 dola dolo.	139 33 nedum pedum.	233 9 capi capi.
72 21 d'vno, e mezzo d'vno mezzo.	140 19 cometa comete.	233 10 exerit exerit.
74 32 della dalla.	141 22 non non folo.	234 30 falta falta.
75 1 zadi zadi rooo. a quei di	142 31 di questi questi.	234 36 iuftam iuftam.
76 21 non è.	143 29 pijs ijs.	235 1 querefam querolaram.
80 3 che accioche.	146 26 formalmete finalmente.	
	148 16 accedat accedam.	
	148 39 perfectiffi. figura perfe. ma deco. quiffima.	
	148 29 cfeendum ratur debeat. dicendum.	
	249 3 quia qua.	

Fig. 3 – “Tavola”, second state of Ff. The Thomas Fisher Rare Book Library, University of Toronto.

Galileo's model of authorship was negotiated within, and, to some extent, against, the Lincean Academy.¹⁰ Its prime mover, Federico Cesi, was keen to avoid a frontal attack on the entire Society of Jesus. His initial suggestion was that Galileo respond to the *Libra Astronomica* (1619) under the name of a student, mirroring the strategy of his Jesuit adversary, Orazio Grassi, who had written under the slightly defective anagrammatic name of Lothario Sarsi.¹¹ Various options, of not responding, of responding but concealing his identity, of responding and unmasking his opponent's concealed identity, or leaving the mask intact, were discussed, and gradually, collectively, the project took shape. Its subject and name shifted from the placeholder "comet material" to the "Counterweight" to the "Cometary Discourse" to the "Sarseid", and finally to the "Saggiatore", implying a serious weighing of rival claims; its genre was also decided collectively, because this dictated tone, and, despite its reputation for bitter satire, the book was actually designed to de-escalate institutional and epistemological polarizations.¹² The epistolary form was selected, and its recipient chosen from a list of contenders with various degrees of proximity to the Jesuit order, as a way of engaging without confronting. Speed was a central concern, lest the controversy seem resolved with presumed Jesuit victory.¹³ Silence meant dishonour. Yet despite, or because of, this collective agenda, it took three years for the project to proceed from drawing board to drawing room.

The baroque trinity of agency (illness, weather, and politics), conspired to delay the operation, though this proved in the mid-term to be beneficial both to the author and the academy. Through all of 1620 and 1621 and on into 1622, letters pulsed from Rome to Florence urging Galileo to consign his overdue manuscript. The overlong fuse of premature preprint publicity fizzled through the curial patronage networks interwoven with those of the Linceans; a staple of news in this period is the repeated non-appearance of the manuscript.

Into print

In July 1622 Galileo finally finished the manuscript of the main text of *Il Saggiatore*, opting, with Nabokovian malice and wit, to engage in a commentary on every passage of Sarsi's

¹⁰ The fullest account of this relationship is Galluzzi, *The Lynx and the Telescope*, chapter 8. Other reliable reconstructions include Redondi, *Galileo: Heretic*, chapter 3; Freedberg, *The Eye of the Lynx*, chapter 5; Drake, *Galileo at Work*, chapter 15; Camerota, *Galileo Galilei*, chapters 7 and 8; Heilbron, *Galileo*, chapter 6. Essential are Antonio Favaro's 'Avvertimento' in *Opere di Galileo* (henceforth OG), VI, especially pp.13-18 and Helbing and Besomi's 2005 edition.

¹¹ For discussions of the best mode of engagement with the author of the *Libra* and on choosing a suitable dedicatee, see *Carteggio Lincei*, 710; OG, XIII, 20, 24, 30-31, 37-39, 41, 43-44, 46-47.

¹² For the title, see *ibid.*, 11, 12, 59-60, 78-79, 82, 84-86, 100; for the genre, 25, 37-38, 41, 43-44.

¹³ For the stress on speed, see *ibid.*, 38-39, 47, 59-60, 68-69, 74, 77-80, 84, 88-89.

Libra, torturing the text in a live broadcast vivisection, flaying a failure. But another round of delays was to prevent it from appearing for another fifteen months. First, the Lincean bureaucrats of science were to collectively read and review the manuscript in its entirety to make sure no doctrinal or social lines had been crossed, with an explicit understanding that Galileo “moderate or mutare or silence” anything which the members did not approve: this lofty goal took several months, despite an error-filled copy being made (the first indication of a future glitch that would lay bare the conflicts inherent in amateur group publication). Herding the editorial Lynxes proved troublesome, and the idealized central corporate voice swiftly fragmented into multiple delegating memos, competing kings of forwards.¹⁴

Attempts to impose control over the debate by using a printer in Rome were also jeopardized by the city’s self-proclaimed status as the head, navel, and most other organs of the world. The proximity of the Collegio Romano, and the Jesuits’ access to the same corridors of power the Lynxes padded meant that the manuscript oscillated between two contradictory socioepistemological states: a secret, private missive, and a public utterance. Cesi’s posse had to lay the foundations for the acceptance of the masterwork and also deny sneak previews to adversaries. Cesi’s lynx could not exist in both states at once, and was soon out of the bag, with the Jesuits fully aware of its contents through oral reports before even the author knew of its final written form.¹⁵ Throughout the long process of the text’s publication, select audiences were granted glimpses of it, following a strategy of information control. In many ways, it makes best sense to talk of multiple media-, location- and group-differentiated ‘publications’ rather than of a singular, centralized, commercial event.

By late January 1623, a manuscript copy had made it to the hands of one crucial reader, the Dominican Niccolò Riccardi, known as The Monster for his memory and/or size, who served as the work’s revisor and granted it its extraordinary imprimatur praising its natural philosophy (which would later be misprinted by Mascardi as ‘filosofia nostrale’ and then corrected by Galileo) on 2nd February 1623.¹⁶ Minor revisions, a combination of comments from Cesi, Cesarini, Ciampoli and other Linceans, were then introduced in March, and Galileo was assured that the manuscript would finally make it to the printshop at the end of the month. A week later printing still hadn’t started, with further delays anticipated due to Easter, which fell on April 16th, 1623. The Linceans were simultaneously printing sections of the “Mexican book” with Mascardi, which they hoped would be completed by 1625, but which wouldn’t actually be published for nearly another thirty years, so it’s unclear how well they understood or controlled the printing process.¹⁷

¹⁴ On group reading and copying, see *ibid.*, 99, 102-108, 111, 113.

¹⁵ *Ibid.*, 105-107.

¹⁶ *Ibid.*, 109. On the typo, see Favaro’s ‘Avvertimento’, OG, VI, 16, fn. 4.

¹⁷ OG XIII, 110, 113. On Mascardi, whose printshop was suggestively located between the Dominican Santa Maria sopra Minerva and the Jesuit Collegio Romano on the Via del Piè, see the entry *sub voce* in the *Dizionario Biografico degli Italiani*.

By the start of May, Galileo was assured that printing had definitely started, and towards the end of the month samples of ‘the first two sheets’, presumably signatures A and B (the first two printed sheets of the manuscript Galileo had submitted, rather than the eventual first half and full sheet of the assembled book, ‘ π ’ and ‘a’, which would in fact be the last to be printed), were sent to Galileo so that he could show off to Florentine detractors that the book really was coming into existence, and therefore had obtained a license.¹⁸

At his point, with Mascardi’s printshop finally at work transforming the corrected manuscript into print, a crisis-cum-opportunity occurred. Pope Gregory XV died on 8th July 1623. The ensuing conclave killed off a further eight of the fifty-four participating cardinals. Papal deaths, conclaves, coronations, and the subsequent wave of cardinal investitures, were newsworthy events, and news meant job printing. Mascardi produced several such pamphlets: printing of *Il Saggiatore* was put on hold.¹⁹ More seriously, though, the election of Maffeo Barberini to the papal tiara sucked Galileo’s printing team into its vortex, leaving his book’s production unsupervised. “Nearly ready” in July, the same news was repeated to the author a month later. The necessity for an engraved title-page design seems to have dawned on them only in mid-August: Galileo’s solicited suggestions were unceremoniously tossed, and a design by Villamena hastily produced. By early September, all that remained was Villamena’s engraving of the title-page design, the printing of the sheet and a half of the final signature Ff, which included the errata, and the laborious printing, on a rotary press, of the remainder of the book’s twenty engraved images.²⁰

Serial publications

At the end of September, just after the coronation of Urban VIII, the end, or rather the beginning, was in sight: only the first half-sheet of preliminaries, π “with the dedicatory letter and this figure [the engraved title-page]” remained, “which will be done next week.”²¹ Again, luckily for Galileo, the schedule was fictional, so he had the opportunity to insert a correction into the sample title-page that he had been sent, in time for it to appear in the edition.²² The dedicatory letter to the new pope, composed by the chronically overworked Cesarini, was finally written and dated 20th October, over eight months after the text’s imprimatur.²³ At around the same time, Cesarini’s promotion to the new pope’s “Maestro di Camera” required the resetting of the first sheet to be have been printed back in May, when the letter’s recipient had been only Gregory XV’s “Cameriere Secreto”. In signature A the

¹⁸ OG, XIII, 115-118.

¹⁹ *Ibid.*, 119.

²⁰ *Ibid.*, 121, 125-126, 129-130.

²¹ *Ibid.*, 132-133.

²² *Ibid.*, 134-135.

²³ *Ibid.*, 139-140.

conjugate leaves 1 and 4 are a half-page cancel, replaced by a half-sheet cancellandum, and so the collation for signature A should be A⁴ (± 1.4).²⁴

The first assembled copy of the book was to be presented to the Pope by Cesi around 25th October; in reality the presentation took place on the 27th, with two bound copies given to Cardinal Francesco Barberini, as well as others to “diverse cardinals and other friends; and they are asked for insistently by others.”²⁵ The next day, October 28th, a single copy was sent to Galileo by courier while a bale of books, initially promised as 70 copies, then immediately downgraded to 50, was packed and sent to him the same day.²⁶

Included in this package were “eight of finer paper, which will serve as gifts to your friends there.”²⁷ This rare and lovely documentary detail, provided by Francesco Stelluti, has led to a persistent error in editors’ and dealers’ descriptions of the book. Mistakenly, it has been claimed, the eight fine paper copies mentioned here constituted the totality of the fine paper issue: this claim has been used repeatedly to boost the value of any copy alleged to be made up of fine paper on the market. Despite the fact that the letter specifies that the copies were for Galileo’s friends in Florence and beyond, fine paper copies with clear Roman distribution have been apotheosized into this select group, which now, wonderfully, includes at least twenty extant documented copies.²⁸

The same letter from Francesco Stelluti to Galileo also acknowledged what will become another source of bibliographical confusion: the first of several improvised attempts to correct copies after their initial diffusion. One figure, on page 120, had been printed upside down. The solution, rather than to reset the already distributed type for both sides of leaf P4, reprint it, then send it to the intaglio printer to receive the correctly oriented image, then cancel the misprinted leaf, was simply to print off further copies of the diagram to be pasted over the upside-down image. An important point to note here, though, is that Stelluti’s solution is late and imperfect: he says he has reprinted only “a few, that if I can have them in time, I will send to you with this [letter] so that you can have them glued over

²⁴ This change is borne out in the material evidence of the book. In the Linda Hall copy, a close examination of the chain line measurements for the paper reveals this cancel. The chain lines are spaced between 29 and 31mm on all leaves in A, within an acceptable range of tolerance for mould use and paper shrinkage. However, the cancel reveals itself in a “middle” chain line, in the LHL copy, roughly halfway between the top and bottom to A 1 and 4. These chain lines are 20mm apart, and are not found on A 2 and 3. Also indicative of a cancel are the dimensions of top of leaf to top chainline. On A1, that measurement is 22.5mm, A2 30mm, A3 between 2 and 6mm, and on A4 23.5mm. Even accounting for trimming, the distance between the chain lines on the top of A1 and A4 is too great for that conjugate leaf to have printed quarto.

²⁵ OG XIII, 140-141.

²⁶ *Ibid.*, 141-143.

²⁷ *Ibid.*, 142-143.

²⁸ The claim is repeatedly made in descriptions by Massimo De Caro, Filippo Rotundo and Umberto Pregliasco and is also found in Helbing and Besomi’s edition.

that one.”²⁹ What we see here is the beginnings of a pattern that will complicate all future attempts to distinguish between different ‘issues’ of the edition: some copies receive the pastedown, others do not. The lack of a pastedown is not evidence of an ‘early’ or ‘first’ issue, but rather evidence of the ad hoc solution to the printer’s error, improvised alongside the edition’s ongoing distribution. Presumably the same partial, incomplete, fix was performed on some, but not all, of the copies in Rome. It may well be that copies already gifted to patrons were subsequently chased down and updated with the patch. It may be that Galileo gave out some copies with the pastedown and some without. It may be that the copies destined for commercial release also received similar treatment. We simply cannot claim that copies without the pastedown are ‘earlier issues’ than those with. Overly neat distinctions have been made of four discreet issues of this edition, but what we hope to show in this essay is that there are actually six issues which differ from Helbing and Besomi’s description, as well as two states – one for p. 120, and one for Ff6, respectively.

Let us return, though, to the narrative of the book’s production. On 3rd November 1623, Tomasso Rinuccini could announce to Galileo that the book had finally been “published.”³⁰ What he meant by that was that it was now commercially available to an out-of-network, or general, public in Rome. The book had already been available non-commercially, or privately published, for a week, and would continue to be distributed in both systems in various locations. This does not mean that groups of copies moving through these different distribution networks are different issues.

We have an improbable account of the first customer in the “Sun” bookstore on the first day of *Il Saggiatore*’s release: in history’s poor script it was none other than Father Grassi, the book’s target, to whom, it seems, ungracious Galileo had not bothered send a copy. Even he did not pay for his copy, though, but demanded one free from the bookseller because of his three-year wait. Further details of this copy make its ‘commercial’ status even more problematic: it seems the bookseller had received some copies from the Holy Office, presumably gifts to The Monster, Father Riccardi, which he then regifted (in exchange for other books, perhaps, an unnoticed perk of censorship).³¹ We should be wary, too, of supposing a harsh distinction between the reception of books within the gift economy and those circulating commercially: Grassi’s copy quickly joined another in the Collegio Romano (gifted or purchased, we do not know) whose contents had already been judged to be “totally beautiful, and dealing with Sarsi too modestly, and that Sarsi will have a job wanting to reply to it: in short, the Jesuits think Galileo treated them well.”³² Tracking the psychogeographies of reading micro-communities was part of the skillset of the Roman courtier.

²⁹ OG, XIII, 142-143.

³⁰ *Ibid.*, 145-146.

³¹ *Ibid.*, 147-148.

³² *Ibidem.*

Stelluti provided further details of the circulation of gift copies in Rome: to accompany publication, Cesi had had no less than sixty copies bound, “and given them to these curious cardinals and prelates and other friends, and also to many in the court of Cardinal de’ Medici, and two to his Holiness”.³³ It is unclear whether these copies were in temporary or, more likely, gift-book bindings, standardized but luxurious, or if they were individualized with the recipients’ armorial stamps, or if they had blank cartouches for each recipient to complete. Several copies can be identified with similar tooling and the arms of contemporary cardinals, though whether this is evidence of Cesi’s munificence or simply the limits of contemporary local taste is not known. What is evident, though, is that the presence of the Rome-based cardinal copies on fine paper proves definitively that the frequently cited number in dealer descriptions of only eight fine paper copies must be discontinued and ignored.

We lack comprehensive studies of fine-paper issues, but it’s worth pausing for a moment to think of the labour and cost involved in making them: as each sheet was printed, a set number of fine paper sheets had to be included, preferably at the end of the run so that they might benefit from stop-press corrections. For every one of the thirty-one and a half sheets required to make a copy of the book that went through the hand press (with another leaf, or quarter sheet, added for the portrait, which only had to pass through the engraver’s press), the fine paper stocks had to be kept separate: stored apart before printing, after the printing of the first side of the sheet, after being perfected, while being transported to the printer of the engravings and printed on again there, while being assembled, and while being distributed. This is a major organizational commitment.

From Stelluti’s letter describing Cesi’s liberality in giving out bound gift copies, and the identification of fine paper copies in cardinals’ bindings, it seems highly probable that the fine paper issue included all sixty of these copies, plus the half-dozen or so Cesi had already given away. Presumably Linceans also received these nicer copies. And we know that Galileo was given eight, and it seems likely that he quickly gave these all away, as even a copy probably gifted to the high-profile original patron of the comet dispute, Leopold of Austria, is not a fine paper copy, nor that given to Orazio Morandi, and Galileo himself seems not have retained one either.³⁴ So the actual figure of the fine paper issue must be not the exclusive eight echoed into self-evidence, but closer to ten times that figure, or perhaps fifteen percent of the print run, ninety out of

³³ *Ibidem*.

³⁴ The copy, with Galileo’s manuscript corrections to the *Nota di errori* is most likely Österreichische Nationalbibliothek 72.J.108 <http://data.onb.ac.at/rep/1089ESF6> (miscatalogued as *Il Saggiotore*). Morandi’s copy, with an autograph inscription reading ‘D[omi]n[u]s Horatius Morandius dono ab Auctoris munificentia accepit. Die 18 Novembris 1623’ is at Special Collections, University College Library, London, C 1623 G1. Both are ordinary paper copies.

six hundred.³⁵ This is the first bibliographical myth concerning the *Saggiatore* we can lay to rest. There are others.

Stelluti's letter also signaled to the author the wider distribution of the book: "next Monday [Cesi] will give the rest to the bookman, so that he can send them out of Rome to the major cities".³⁶ The commercial success or failure of the enterprise seems to have been of little concern to Cesi, who was already accustomed to sinking his wealth into print. The expenses for the Linceans' earlier Galileian publication, the *Istoria e Dimostrazioni Intorno alle Macchie Solari*, survive, and show that the group had optimistically and unrealistically printed 700 copies of Scheiner's seven-sheet book for 38 scudi and 1400 copies of Galileo's twenty-one-sheet book for 171 scudi, plus another 49 scudi to 'finish' the printing; about one sixth of the cost of the book's production was devoted to making its images.³⁷ If these figures are accurate (and they do not include waste, which probably adds another 10%), the *Istoria* required a total of 34,300 sheets of paper (we do not know if there was a fine paper issue included in this figure; paper made up just under a quarter of the total expense). The *Saggiatore*, by contrast, with its greater number of sheets but smaller print run used a total of 18,900 sheets. The production and printing of the twenty engravings in the body of the text was also considerably less time consuming than the epistemologically loaded visuals of the *Istoria*. Even printing ninety or more fine paper copies, then, must have seemed like a bargain in comparison: what was lost in sales and paper expense was gained in social distinction. Fine copies made for fine readers.

Hard cash aside, the general aim of the publication is important to bear in mind when thinking about its production: the book was not intended solely to promote a rival cometary theory or to silence a rogue Jesuit. Its job was to prise open the larger cosmological questions that had been, in the minds of the Linceans, only temporarily closed with the 1616 injunction against Copernicanism. It therefore made perfect sense to think of this as only secondarily a commercial venture: what mattered was getting copies, preferably nicely bound sumptuous copies on plush paper, into the hands of the highest echelons of theological and political authority. The material imbalance in the debate was shrewdly pointed out by Father Grassi, who complained that he was at a disadvantage as he did not have someone to pay for all his printing costs.³⁸

Such lofty machinations, however, mangled with the Linceans' own involvement in papal court life. As Galileo discovered as soon as he opened his book, the usual textual transformations wrought by scribe and copyist had been supplemented, rather than cor-

³⁵ The usual figure of 384 was miscalculated by Biagioli, *Galileo Courtier*, 297, fn. 94, and was corrected by Galluzzi, *The Lynx and the Telescope*, 279.

³⁶ OG, XIII, 147-148.

³⁷ OG, XIX, 265-266.

³⁸ OG, XIII, 153-154.

rected, by the substitute editor, Tommaso Stigliani, a relatively well-known poet, client of Virginio Cesarini and enemy of Galileo's friend, the genuinely famous Giovan Battista Marino. As Galileo put it in a letter dated 18th November 1623 to Federico Borromeo that accompanied a gift copy (now Biblioteca Ambrosiana S.P.25), "Eight days ago some copies of my *Saggiatore* came from Rome, but so full of mistakes due to the negligence of the proofreader, that I have had to do an index of errors, and print it here in Florence and add it to the end of the work".³⁹

Anachronistically, one might think that the author would have an automatic final say to textual content, but the case of *Il Saggiatore* shows us that behind this assumption there is a complex history. The text had already been modified by a scribe, a committee, a censor and a compositor, but what right had an author to reassert intention? Galileo sent some copies of his Florentine printed list of 209 errors down to Cesarini in Rome, who promised to distribute them as Galileo had asked and to throw Stigliani under the carriage.⁴⁰ We do not know how many copies of this half-sheet Galileo had printed, though they were described as only a "few", not enough to correct the entire print run. Nor do we know how he imagined Cesarini would track down purchased copies of the book. Cesarini claimed to have issued an order for Galileo's list to be reprinted in Rome, but it is unlikely that this was ever executed, as all copies examined seem to show the same textual setting.⁴¹ Nearly a fortnight later Tommaso Rinuccini wrote to Galileo saying that he still had not seen the "indices", even though he'd checked with the printer and the bookseller. He'd heard that Cesarini still had them and would try to make sure that Grassi received one, presumably so that the errors of the "exquisite balance" would not become a new target for mockery.⁴²

Resistance to the author came not just from Cesarini, perhaps feeling implicitly criticized by Galileo's errata sheet, but also by the editor he had appointed and then blamed. Stigliani, doubling down, considered Galileo's notion of error itself to be inaccurate, and proposed printing his own, emended errata sheet of thirty to thirty five corrections, while also preventing Galileo's sheets from exiting Cesarini's room.⁴³ Even Cesi seems not to have seen Galileo's errata sheet, though he knew of it and asked Galileo to send it to him.⁴⁴ Eventually Cesarini intervened into this client spat and produced his own compromise list of 136 errors, presumably annoying everyone involved, but neatly demonstrating that letters belong to their recipients, not their senders. To further complicate matters, rather than merely printing this, as Galileo had done, as a pastedown and addi-

³⁹ *Ibid.*, 148-149.

⁴⁰ *Ibid.*, 160-162.

⁴¹ *Ibid.*, 150-151 and 160-162.

⁴² *Ibid.*, 153-154.

⁴³ *Ibid.*, 160-162.

⁴⁴ *Ibid.*, 165.

tional leaf, Cesarini had Ff6 reset and reprinted on a new bifolium Ff1.6, which was then substituted for the original.⁴⁵

Even Galileo's printed list, though, seems not to have satisfied him, and some copies of the book either have additional errata added by Galileo by hand or corrections made directly to the text. These are not always in agreement, and there is no 'ideal' copy that fully represents some initial or final authorial intention. What we experience instead is a wide range of both textual and material combinations, with the only real constant the presence of sheets π and A-Ff, that is, the engraved title-page, imprimatur and dedicatory letter and the main text block. For reasons that are still not clear, the introductory verses may or may not be present; the portrait of the author may or may not be present; the pastedown diagram correction may or may not appear on p.120; Galileo's "Nota di errori" may or may not be present, sometimes pasted over Ff6v's original list, the "Errori occorsi nello stampare di maggior consideratione", or may be tipped in after it; Cesarini's "Tavola degli errori" may or may not be present. The order of preliminaries might be π (engraved title-page, imprimatur, dedicatory letter), a (poems), χ (portrait), or π , χ , a; the portrait might be tipped in facing left or right, or not present at all.

To speak of "issues" when dealing with this card shuffling is, at best, misleading. Certainly, there are copies whose individual histories may be told, via accompanying documentation, clues from binding, or other provenance information; we do not dispute that Galileo wrote a manuscript he called *Il Saggiatore*. But we find the Procrustean Bed of Bibliographical Issues to be especially damaging to the historical record and to deeper bibliographical analysis.

The most thorough critical edition of the *Saggiatore*, by Besomi and Helbing, has enshrined the cumulative wisdom of bibliographers and is worth considering at this point, as it has become the standard reference work.⁴⁶ Four separate issues are there discerned:⁴⁷

⁴⁵ As noted earlier, two copies of the book with the *Tavola* were located and examined – one at Toronto, and one at Berkeley. Both of these copies have the re-set recto and verso of Ff6 as a cancel leaf, mounted on a stub. Favaro notes an example in the National Library in Naples with the shelf mark 26.C.4, but the library's online catalog only lists one bizarre hybrid copy made up of the 1656 Bologna reprint supplemented with the original edition's two initial gatherings, π and 'a' (S.Q. 25. K). Favaro's copy may now be classified among the library's manuscripts as Ms. XII.E.74 (<https://manus.iccu.sbn.it/cnmd/0000175696>). The library's card catalog lists four copies: 33.D.51; 26 [letter obscured by punch hole, but presumably, from Favaro's note, 'C'] 4; XII.2.31; 208M.41. One of the two copies in Oklahoma contains a negative photocopy of the reset Ff6.

⁴⁶ It should be pointed out that the collation statement on p.643 erroneously described the edition as 'In-8°' rather in 4°, and refers to the engraved title-page, imprimatur, dedicatory letter and portrait leaf by Roman numerals I-V. The edition also did not notice the cancel in 'A', nor does it account for the issues resulting from the erratas, poems, and fine paper.

⁴⁷ Helbing and Besomi, 644-645. The term deployed is "tiratura", which is technically a print run. This is clearly at best imprecise, as they are discussing what the Anglophone trade calls an

- First issue: limited to eight copies, thick paper, no poems (signature ‘a’), short errata, cancel slip correcting inverted image on p.120.
- Second issue: contains Faber and Stelluti poems (signature ‘a’), short errata.
- Third issue: errata added to the bottom of page 236.⁴⁸
- Fourth issue: long errata on pages 236-238.⁴⁹

The detailed chronology we have laid out should immediately render such divisions suspicious: there simply never were four neat waves of issues, even less so print runs, whatever that might mean for a hand-press edition. The scheme combines several unrelated and qualitatively different factors: paper quality, omission or inclusion of signature ‘a’, paste-down corrected diagram, cancel Ff6 with 136 errors and long errata with 209 errors, and presents them as a linear narrative, assigning, moreover, primacy to the “first issue”.

What, then, are we left with, and what is needed in a description of a specific copy of *Il Saggiatore*? We propose describing the paper stocks used, and based on the data in this article, asserting whether a particular copy is on fine or ordinary paper; the presence or absence of signature ‘a’, the preliminary poems; whether the portrait of Galileo is present, and whether it is signed by Villamena, and its location; whether the copy has the cancel diagram on p. 120; and finally, which errata is present, and if it is the “Nota”, how it is attached or inserted.

We can state that for the first edition of *Saggiatore* there are six issues, and two states for p. 120, and signature Ff, respectively:

- Issues:
 - With the poems ‘a’
 - Without the poems ‘a’
 - Without the added errata ‘[Gg]’
 - With the added errata ‘[Gg]’⁵⁰
 - Printed on ordinary paper
 - Printed on fine paper
- States:
 - page 120 is in two states – with and without the cancel diagram

“issue”, which in Italian is “emissione”, though the term “tiratura” is commonly used, despite its emphasis on printing rather than publishing, to mean “issue”.

⁴⁸ The editors then say “16 errors listed”, but this must be a mistake for ‘136’, as what seems to be described here is the cancel Ff6rv, with the text ending on page 235 and the “Tavola degli Errori occorsi nello stampare” on page 236.

⁴⁹ This must correspond to Galileo’s Florentine “Nota”, actually printed and distributed before the so-called Third issue’s errata, the “Tavola.”

⁵⁰ It should be noted that the “Nota” which comprises [Gg] can be inserted loosely at the end as it is a bifolium, bound in, or even tipped in, as Galileo likely intended it to be, noted elsewhere.

- Ff6 is in two states – this leaf was re-set with Cesarini’s revised errata (“Tavola”), producing two states.⁵¹

As to a chronology for these, which has been erroneously established in the past, we can state that the re-set of Ff6 came after the original *Errori*. However, as the poems, cancel diagram, and Galileo’s *Nota* circulated separately from the book, no priority or chronology can or should be deduced from their presence or absence.

We are, however, now also able to distinguish a fine paper and an ordinary paper issue, although even this apparently simple distinction may be harder to make than normal: the difference in paper quality is not that noticeable, and all copies include some sheets printed on the fine paper stock, as we shall demonstrate below. The assemblage of copies, whether they include or do not include sheet ‘a’, whether they include the original short errata, or one of the two longer errata, whether they received the pastedown correction to page 120, is far more random, or dependent on a variety of sometimes extremely local and contingent factors, than the notion of ‘issues’ allows.

Before we consider the hierarchies of value enshrined in this model, let us trace its origins. Despite the rich documentation surrounding the book’s prolonged publication, it seems that the first notice of different states was not published until the late nineteenth century. This was limited to an awareness of the three different errata lists and the absence of the poems.⁵² Favaro’s 1896 edition, with its prime purpose to restore, in the absence of a manuscript, the author’s original intention, rather than, say, the earliest, most common or latest published form of the text, in which we now may be most interested, saw these variants as corruptions to be excised. In this he followed a long line of Italian editions, most of which, since the first edition, had simply removed ‘non-Galileian’ elements such as the imprimatur and the poems, from the text. The question of fine paper copies or the frequent absence of signature ‘a’ interested Favaro hardly at all: what he wanted was Galileo’s intended text. Skipping on to 1956, we find the dealers J. Irving Davis and Pino Orioli using an extremely limited data set of the two copies in the British Library, to make the grand claim, which has somehow remained pervasive to the present day, that sheet ‘a’ was print-

⁵¹ We draw here on the work and definitions of issue and state by G. Thomas Tanselle in his essay “Issue and State” in his *Descriptive Bibliography* of 2020.

⁵² Ferrajola, “Delle rarità o singolarità non avvertite nelle edizioni di libri specialmente di Crusca”, 38, Galileo: *Saggiatore*, Roma, 1623 “[...] Ne ho due copie. Una è identica a quella descritta dal Razzolini-Bacchi [Luigi Razzolini and Alberto Bacchi della Lega, *Bibliografia dei Testi di Lingua a Stampa citati dagli Accademici della Crusca*, (Bologna, Alberto Romagnoli, 1878)], nell’altra mancano le poesie in lode di Galileo, ed è stata ristampata l’ultima carte per restringere tutto il testo nella facc. 235 e consacrare l’intera 236 a una sterminata «Tavola degli errori» in tre colonne di minutissima lettera. Negli esemplari come quello descritto dal Razzolini-Bacchi gli errori corretti sono solo sedici”. To be fair, Razzolini and Bacchi did note the frequent absence of the poems in their entry on *Il Saggiatore* on page 405.

ed last, after the rest of the book, and so its absence indicates an early issue.⁵³ Analysis of the book's paper stocks and contextual documentation disproves unequivocally this quite flimsy yet durable theory: the Faber and Stelluti poems were printed almost exclusively on paper watermarked with an Anchor; this paper was also used in some copies in signature Y and Ff, that is, during the normal print run. Furthermore, Stelluti's letter to Galileo announcing expedition of the first fifty copies, dated 28th October 1623, explicitly says that those copies contained the poems, with a lovely vignette on their chaotic composition:

You will see in your book my song: I beg you to excuse me the imperfections you will find in it, because in addition to having my mind elsewhere and caught up in a thousand affairs, I had to do it in the chambers of these cardinals, in carriages and in the street when I was alone, because we never got to sit tight at home, and so I couldn't do it as I wanted.⁵⁴

Might it be, though, that the absence of the poems from some copies indicates, perhaps, different assembly and distribution centers? Unfortunately, no clear patterns are discernible, at least from the copies we have analyzed: there is, indeed, a high proportion of fine paper copies lacking the poems, fourteen out of twenty. But these copies may or may not also omit Galileo's portrait, they usually, but not always contain only the original Ff6 errata; they may or may not be in a contemporary gift binding; they may have either Florentine or Roman early provenance. Almost every combination of states is possible. The same range of combinations is seen in fine paper copies with the poems. We are at a loss to discern any pattern or intention in the presence or absence of these components, though a wider analysis, currently hampered by the repetition of non-copy-specific descriptions

⁵³ Davis and Orioli, Catalogue 155, n. 21 (1956), "After having examined the various copies in the British Museum, we feel sure that both the commendatory verses and the leaves of errata and probably the portrait were added later. In confirmation of this opinion, there is the fact that this additional matter as well as the portrait are printed on paper with a different watermark from that found in the rest of the book, and that in the collected edition of Galilei there is printed a letter in which he complains of the numerous printer's errors, and states that he had to have hastily printed a leaf of corrections to add to the copies to be distributed". Some variations occur: a typical trade entry, taken more or less at random, and nicely conflating the terms 'issue' and 'state' is that of Philobiblon's *Italian Books* catalogue, Spring 2019: "[T]hree different states of the 1623 edition are known. The first issue is usually identified – as it is here – by the short errata containing only sixteen corrections printed on the verso of the last leaf (fol. F6v): during the printing Galileo was in Florence and could not supervise corrections; for the second issue he included additional errata, printed on an extra leaf bound at the end of the work. The list was further revised for a total of 137 errata in the third and final issue. Also distinctive of the first issue is the correct diagram on page 120 (fol. P4v) pasted over the misprinted one, as well as the absence of the four-leaf quire signed a, containing two poems in praise of Galileo [...]"

⁵⁴ OG, XIII, 142-143.

across many library catalogues, may still reveal factors currently eluding us. It is not, for example, the case that the poems were omitted from Roman copies lest the claims of Galileo's superhuman acumen offend Jesuits or cardinals, or that Galileo excised the poems from the copies he distributed because they mentioned Della Porta as the inventor of the telescope. Perhaps a copy with poems just cost a bit more. Despite this apparent bibliographical fecundity, dealers have been keen to claim primacy for Issue 1 copies ('the earliest'), but also, when the situation suited, Issues Two ('complete'), or Issue Three ('Final') or Four ('Authorial'). But we are dealing with little more than a shell game: the important thing is to not look away.

Let us turn now to the question of the edition's paper stocks, which have to date never been described. This is surprising, given the frequency of quite subjective claims concerning copies' 'thick paper', whose feel might reflect more the storage conditions and restoration practices of individual copies rather than their production process. It seems helpful to see whether an analysis of watermarks actually provides us with clear guidelines for identifying both 'ordinary' and 'fine' paper copies. In our admittedly limited survey, we have traced several copies that seem, due to their provenance, to be good candidates for the fine paper category, and noted their watermarks; we have also done this for ordinary paper copies, and are now in a position to provide scholars with a guide to identifying these two issues.

Watermarks

Watermark identification is difficult due to the book's quarto format, as the watermarks are in the gutter of all copies. For the present article, the authors gathered watermark data for 26 copies, on both fine and ordinary paper, though in some tightly bound copies, evidence was extremely limited.⁵⁵

Fine Paper

- Sample copy: Florence, Biblioteca Nazionale Centrale, MAGL. 3.2.406)
 - π 1-2 larger (40 mm circle dia) fleur-de-lys in crowned circle.
 - A - X smaller (35 mm dia) fleur-de-lys in crowned circle
 - Y 2-3 Paschal Lamb
 - Z 1-4 Ff smaller fleur-de-lys

⁵⁵ Copies consulted: Linda Hall Library (1), New York Public Library (1), Biblioteca Nazionale Centrale di Firenze (7), University of Oklahoma (2), Jay Pasachoff (1), Houghton Library, Harvard University (1), Stanford University (1), Boston Public Library (1), ex-Rick Watson copy (1), University of Chicago (2), University College London (1), Austrian National Library (1), Thomas A. Fisher Library, University of Toronto (2), Princeton University (2), Bancroft Library, University of California, Berkeley (2).

While there are a mix of stocks here, the variety is limited (three marks, as opposed to five or more in the ordinary paper), and the marks stylistically are more consistent. The 'Paschal Lamb' watermark may appear elsewhere, though we have also seen fine paper copies with A-Ff entirely in the smaller fleur-de-lys paper. We have not come across the Lamb watermark in ordinary paper copies. An ideal copy might exist which would have the following watermarks:

- π 1-2 thick paper and larger (40 mm circle diameter) fleur-de-lys in crowned circle.
- a Anchor in circle
- A-FF smaller fleur-de-lys

To date we have seen the Lamb paper used only in signatures Y and BB.

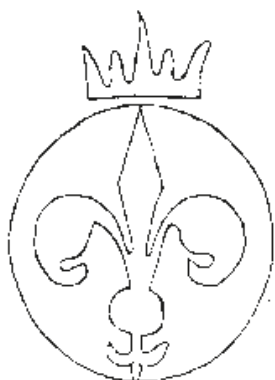
It should be noted in all copies that signature A is printed on half sheets and therefore may show zero, one or two watermarks.

Ordinary paper

In the thirteen ordinary paper copies examined, numerous paper stocks are identified from the watermarks in each signature. Some patterns do emerge. First, the bulk of the copies examined followed this set of watermarks:

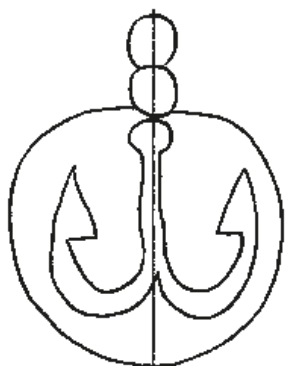
- π - larger (40 mm circle dia) fleur-de-lys in crowned circle
- a - Anchor in circle
- A - B smaller fleur de lys in circle with crown
- C - indiscernible
- D - smaller fleur de lys in circle with crown
- E - G Shield with kneeling man with hands raised in prayer
- H - I smaller fleur de lys in circle with crown
- K - Shield with kneeling man with hands raised in prayer
- L - Six-pointed star in circle, not same watermark as portrait
- M - smaller fleur de lys in circle with crown
- N - Six-pointed star in circle, not same watermark as portrait
- O - smaller fleur de lys in circle with crown
- P - Y Six-pointed star in circle, not same watermark as portrait
- Z - Shield with kneeling man with hands raised in prayer
- Aa - smaller fleur de lys in circle with crown
- Bb - Shield with kneeling man with hands raised in prayer
- Cc - Ee smaller fleur de lys in circle with crown
- Ff - Six-pointed star in circle, not the same watermark as portrait

This mix of paper stocks is slightly unusual, but is not a surprise for a printer like Giacomo Mascardi. Mascardi's press printed a high volume of work in the 1620's, and as such, would have a mix of ordinary paper stocks at hand, drawing upon them as needed in the production of books. It is tempting to read uninterrupted series of the same wa-



4213 (1544)

Fig. 4 – Large fleur de lis, Briquet [Briquet, C.-M. (Charles-Moïse), and Allan Stevenson. *Les Filigranes: Dictionnaire Historique Des Marques Du Papier Dès Leur Apparition Vers 1282 Jusqu'en 1600 [par] C. M. Briquet. A facsimile of the 1907 ed. with supplementary material contributed by a number of scholars. Edited by Allan Stevenson. Amsterdam: Paper Publications Society, 1968.]* no. 7111.



583

Fig. 5 – Anchor watermark, Briquet no. 583.

termark as indications of continual printing, and changes as indicative of disruption, but we know too little about Mascardi's presses and paper handling to be able to draw any conclusions from these shifts.

In general, ordinary paper copies of *Saggiatore* typically have the same marks as listed above, but can be in different order. Additional watermarks witnessed include a Mermaid, a Head, a Duck, an Eagle. There may be others.

Three facts are worth considering: first, all copies, whether fine or ordinary paper, seem to use the same paper for π (large fleur-de-lys), χ (six-pointed star, usually with vertical chain lines) and 'a' (an Anchor). The preliminaries are therefore not a guide to distinguishing one issue from the other. Second, the 'small fleur-de-lys' thick paper that generally makes up most or all of the fine paper copies also *always* appears in the ordinary paper copies: some sheets, such as A, B, Cc, Dd, and Ee, are *always* printed on this paper; others, such as C, D, H, I, K, L, M, N, O, P, Q, and Aa, are sometimes printed on this paper, sometimes on other paper. Put another way, anything between an eighth to a third of an ordinary paper copy may actually be on fine paper. There may be copies that blur this distinction further. Third, some sheets, such as Y and Aa, are printed on at least six different papers. Again, it is tempting to draw conclusion from these observations concerning Mascardi's printing practices, but the presence of fine paper copies shows that, even if it is hard for us to impose order on the printing and assembling process, order there indeed was.

While we have argued for a dismantling of the chronological hierarchies of issues and



Fig. 6 – Smaller fleur de lis, Likhachev [Likhachev, Simmons, Ginneken-van De Kastele, Simmons, J. S. G., and Paper Publications Society. *Likhachev's Watermarks : An English-language Version / Edited by J.S.G. Simmons and Bé Van Ginneken-van De Kastele*. Monumenta Chartæ Papyraceæ Historiam Illustrantia; 15. Amsterdam, Holland: Paper Publications Society, 1994.] no. 4213.

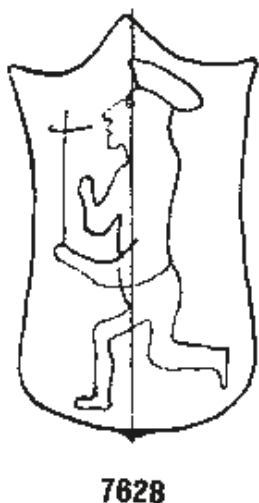


Fig. 7 – Kneeling man/Praying man, Briquet no. 7628.

instead for a more neutral vocabulary of bibliographic states, we should also be aware of copies that fall outside the normal realm of possibilities. Sometimes the portrait is supplied from the *Istoria*, which had used the same plate ten years previously: the only difference is that in 1623 Villamena signed the plate, and the printer used different paper (though as it is a small half sheet, a watermark may not be evident). Sometimes the portrait is added in facsimile, which may be deduced by the lack of platemark or signs of a different printing technique; presumably it has also sometimes been taken from other copies. This may be detected by noticing differences in sewing hole position or leaf dimension or discontinuities in gauffering or marbling or wear on the edge of the bookblock. Similar techniques might reveal more substantial sophistication. Given the large number of watermarks in the ordinary paper copies, this book is perhaps more susceptible than most to silent completion by facsimile.⁵⁶ On the other hand, the previous lack of watermark documentation and an expectation of homogeneity has also led to genuine portraits, for example, being misidentified as facsimiles.

The best documented case of an abnormal copy may serve as a warning of the damage that the values embedded in bibliographical categories can wreak upon their subjects: Christie's London owns a copy sophisticated and defaced with the now infamous Cesi

⁵⁶ This is perhaps best embodied in the University of Chicago's "copy 1" of the book, which has a portrait supplied in facsimile, in addition to obvious sophistication seen in the gauffering of some signatures, and the lack of gauffering in others.

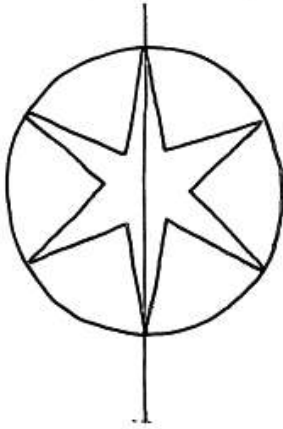


Fig. 8 – Star in circle, Velters no. 1551.

lynx stamp made by Massimo De Caro and deployed also on the forged Martayan Lan *Sidereus Nuncius*. The shoddy copy had been turned into a prized ‘first issue’ by the removal of an errata sheet, with signature A, with extended margins, supplied from another copy. The copy is now unsellable, as it probably contains some stolen components, though they will most likely never be identified.⁵⁷ In the wrong hands, bibliographical descriptions are prescriptive; our primary responsibility is to understand, in all their exuberant variety, how these books came to be as they are, rather than to arrange them into overcrowded cages.

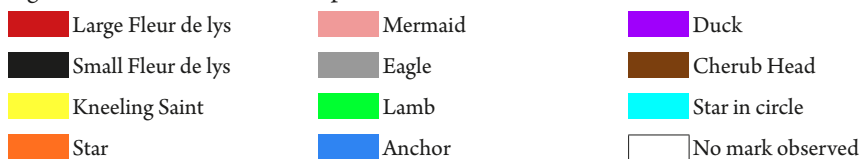
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⁵⁷ See Wilding, “Forging the Moon”, 46.

signature	page nos	Biblioteca Nazionale Centrale di Firenze, Pal (11) C.6.2.14	Jay Pasachoff/Williams College	University of Oklahoma, Special Collections, 'Non-Drake copy'	Biblioteca Nazionale Centrale di Firenze, Ms. Gal.62	Biblioteca Nazionale Centrale di Firenze, B.R. 173	Fisher Gal. 172	Fisher Gal.173	University of Oklahoma, Special Collections, 'Drake copy'	Privately owned copy, sold by William P. Watson	Fisher Gal. 174	New York Public Library, Special Collections, *KB 1623	Institute for Advanced Study, Herbert M. Evans copy
π	Preliminaries								N/A				
a	Poems		N/A				N/A	N/A		N/A			
X	Portrait						N/A	N/A					
A	1-8												
B	9-16												
C	17-24												
D	25-32												
E	33-40												
F	41-48												
G	49-56												
H	57-64												
I	65-72												
K	73-80												
L	81-88												
M	89-96												
N	97-104												
O	105-112												
P	113-120												
Q	121-128												
R	129-136												
S	137-144												
T	145-152												
V	153-160												
X	161-168												
Y	169-176												
Z	177-184												
Aa	185-192												
Bb	193-200												
Cc	201-208												
Dd	209-216												
Ee	217-224												
Ff sheet	225-236												
Ff3.4													
Ff6													

Fig. 9 – Chart of watermarks in copies examined.



signature	page nos	Stanford University Library Barchas Collection QB721 .G35 1623	Boston Public Library E. 189.31	Harvard University, Houghton Library GEN *IC6 G1333 623s	University of Chicago, Special Collections QB41. G187 copy 2	UC Berkeley, Bancroft Library, QB721.G3 1623 Copy 2	Biblioteca Nazionale Centrale di Firenze, B.R. 174	Biblioteca Nazionale Centrale di Firenze, Nenc. 2.4.8.38	Biblioteca Nazionale Centrale di Firenze, Magl. 3.2.406	Biblioteca Nazionale Centrale di Firenze, Pal (11) C.6.2.13	University of Chicago, Special Collections QB41. G187 copy 1	Princeton University Library Ex 8409.375
π	Preliminary										?	(no wm)
a	Poems		N/A			N/A				N/A	N/A	
X	Portrait											
A	1-8											
B	9-16											
C	17-24											
D	25-32											
E	33-40											
F	41-48											
G	49-56											
H	57-64											
I	65-72											
K	73-80											
L	81-88											
M	89-96											
N	97-104											
O	105-112											
P	113-120											
Q	121-128											
R	129-136											
S	137-144											
T	145-152											
V	153-160											
X	161-168											
Y	169-176											
Z	177-184											
Aa	185-192											
Bb	193-200											
Cc	201-208											
Dd	209-216											
Ee	217-224											
Ff sheet	225-236											
Ff3.4		?				no w.m.						Ff3.4: no w
Ff6												

-  Large Fleur de lys
-  Mermaid
-  Duck
-  Small Fleur de lys
-  Eagle
-  Cherub Head
-  Kneeling Saint
-  Lamb
-  Star in circle
-  Star
-  Anchor
-  No mark observed

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