

GALILEO AND BIBLICAL EXEGESIS¹

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Galileo's theological acumen, especially concerning the relationship between the Bible and science, has been celebrated by diverse commentators.² The most detailed and sophisticated recent analysis of Galileo's prin-

¹ For an earlier and more extensive analysis of this topic, see William E. Carroll, "Galileo and the Interpretation of the Bible", *Science & Education* 8 (1999), 151-187.

² Not the least among whom is Pope John Paul II, who remarked in October 1992 that Galileo, "a sincere believer", paradoxically "showed himself to be more perceptive" in his biblical hermeneutics "than the theologians who opposed him". "Address to the Pontifical Academy of Sciences", 31 October 1992, *Origins*, Vol. 22, N. 12 (November 12, 1992), 372. Walter Brandmüller writes: "Ci troviamo così di fronte al paradosso di un Galilei che sbaglia nel campo delle scienze e di una Curia che sbaglia nel campo della teologia. Viceversa, la Curia ha ragione nel campo scientifico e Galilei nella interpretazione della Bibbia. *Galilei e la Chiesa ossia il diritto ad errare* (Città del Vaticano: Libreria Editrice Vaticana, 1992), 196. Girogio di Santillana's praise for Galileo the biblical exegete is effusive: "In his concern with enduring things, in his confessional simplicity, Galileo spans the centuries. Through him, what we call science is speaking out unequivocally for the first time; yet there lives in him a spirit more ancient and ample than that of the ecclesiastical [statesmen in Rome such as Pope Urban VIII]. [Galileo exhibits]... the spirit of ecumenic and conciliar Christianity which warns and exhorts with the dignity of a Father of the early centuries. The contrast between the theological style of his epistles and that of the official apologetic literature [of the Inquisition] is enough to tell the story. The elaborate baroque formulas of submissiveness do not prevent the reader from feeling that here is someone like Ambrose, Augustine, or Bonaventure, reprimanding sleepy shepherds... [Galileo] speaks in the name of the community of the faithful which joins the ancient dead to the yet unborn. He is not simply the consulting astronomer; he is the adviser in matters of natural philosophy and metaphysics who requests to be heard, and, if as he inti-

ciples of biblical exegesis is the work of Mauro Pesce,³ for whom Galileo represents a missed opportunity for the Church in the seventeenth century to discover a *modus vivendi* between modernity and religion [*una convivenza tra modernità e religione*]. According to Pesce, it was not until Pope Leo XIII's encyclical, *Providentissimus Deus* (1893), that the Church would accept, even in an attenuated form, the principles enunciated by Galileo. For Pesce, the fundamental issue from 1616 to 1893 was not really the acceptance of Copernican astronomy, but rather the unwillingness of the Church to accept Galileo's hermeneutical principle that the truth of Scripture is religious and not scientific. Pesce claims that it was this distinction between science and religion which constituted the core of Galileo's understanding of the Bible, and, furthermore, that it was the rejection of this distinction which lies behind the condemnation of heliocentric astronomy.

In this paper, I want to examine Galileo's theological arguments concerning the relationship between science and Scripture which are found principally in a series of letters and notes he writes from 1613 to 1615.⁴ In particular, I will examine a few key passages in his letters to Benedetto Castelli and to Christina of Lorraine. Throughout his writings on science and the Bible, Galileo sets forth two general principles. First, there can be no contradiction between the truths of science and the truths of faith. God is the author of all truth: both the truth known through revelation and the truth known through reason alone. The views that truth does not contradict truth and that rational inquiry has a competence of its own are hardly

mates, it is holiness of intention and gravity of counsel that make authority, he deserves heeding no less than Aquinas himself. He was not wrong either... The content of his spurned and incriminated theological letters has become official Church doctrine... Had there been in Rome, at the time of the first crisis of 1616, a youthful Aquinas to take up his lead, instead of an aged Bellarmine—but there was no Aquinas, and there was not time". *The Crime of Galileo* (Chicago: University of Chicago Press, 1955), x-xi.

³ "L'interpretazione della Bibbia nella lettera di Galileo a Cristina di Lorena e la sua ricezione. Storia di una difficoltà nel distinguere ciò che è religioso da ciò che non lo è", *Annali di storia dell'esegesi*, 4 (1987), 239-284; "Momenti della ricezione dell'ermeneutica biblica galileiana e della *Lettera a Cristina* nel XVII secolo", *Annali di storia dell'esegesi*, 8/1 (1991), 55-104; "Una nuova versione della lettera di G. Galilei a Benedetto Castelli", *Nouvelles de la République des Lettres*, (1991 - II), 89-122; "Le redazioni originali della lettera 'copernicana' a B. Castelli", *Filologia e Critica*, 2 (1992), 394-417; "Il *Consensus veritatis* di Christoph Wittich e la distinzione tra verità scientifica e verità biblica", *Annali di storia dell'esegesi*, 9/1 (1992), 53-76; and "L'indisciplinabilità del metodo e la necessità politica della simulazione e della dissimulazione in Galilei dal 1609 al 1642", *Disciplina dell'anima, disciplina del corpo e disciplina della società tra medioevo ed età moderna* (a cura di Paolo Prodi, Bologna: Mulino, 1994), 161-184; "Il primo Galileo e l'ermeneutica biblica", in *Anima e paura. Studi in onore di Michele Ranchetti*, edited by B. Bocchini Camaiani and A. Scattigno. Macerata, 1998; and for an excellent synthesis of his views: "La 'Lettera a Cristina': una proposta per definire ambiti autonomi di sapere e nuovi assetti di potere intellettuale nei paesi cattolici", in Galileo Galilei, *Lettera a Cristina di Lorena*, edited by Franco Motta. Genova: Marietti, 2000, 9-66. The specific observations I attribute to Pesce in what follows I have drawn from these sources.

⁴ Letters to Benedetto Castelli, Piero Dini, and the Grand Duchess Christina.

alien to Catholic culture. Augustine and Aquinas admit as much, as did Cardinal Bellarmino.

Galileo's second general principle is that the main purpose of God's revelation in Scripture is not to teach natural philosophy but to lead all to salvation. What some often see as particularly modern in Galileo's understanding of the relationship between the Bible and science is but the reaffirmation of traditional Catholic thinking. Despite Galileo's explicit claim that he is only reaffirming "the common doctrine",⁵ Pesce, Giorgio Stabile, Paolo Lombardi, and others think that Galileo's hermeneutical principles were as unacceptable to the Church "as they were new." In particular, they claim that Galileo denies to the Bible any authority in determining truths of nature and that this denial is a radical departure from traditional Catholic thinking.⁶

Although Galileo does emphasize more than do his contemporaries the distinction between the essentially religious purpose of the Bible and other truths which it may contain, I do not think that he really *anticipates* a *radical* separation between religious truths and other truths in the Bible.

Galileo's excursion into biblical exegesis had a practical end. He sought to persuade the Church not to condemn Copernican astronomy, especially since he was convinced that he was on the verge of proving that the earth moves. In the attempt to protect the new astronomy from the charge of heresy, Galileo appealed to theological principles which were shared by the theologians of the Inquisition. Galileo uses arguments found in Melchior Cano (1509-1560) and Benedictus Pererius (1535-1610), whose works were fundamental for Counter-Reformation Catholicism. In fact, Galileo quotes the following from Pererius' commentary on Genesis:

⁵ "The motion of the earth and the stability of the sun could never be against Faith or Holy Scripture, if this proposition were correctly proved to be physically true by philosophers, astronomers, and mathematicians, with the help of sense experience, accurate observations, and necessary demonstrations. However, in this case, if some passages of Scripture were to sound contrary, we would have to say that this is due to the weakness of our mind, which is unable to grasp the true meaning of Scripture in this particular case. This is the *common doctrine*, and it is entirely right, since one truth cannot contradict another truth. On the other hand, whoever wants to condemn it judicially must first demonstrate it to be physically false by collecting the reasons against it... If the earth *de facto* moves, we cannot change nature and arrange for it not to move. But we can rather easily remove the opposition [*la repugnanza*] of Scripture with the mere admission that we do not grasp its true meaning [*il suo vero senso*]. Therefore the way to be sure not to err is to begin with astronomical and physical investigations, and not with scriptural ones", *Considerazioni circa l'opinione copernicana*, EN, Vol. V, 364-5 (cf. M. Finocchiaro, *The Galileo Affair*, University of California Press, 1989, 80-82).

⁶ Giorgio Stabile, "Linguaggio della natura e linguaggio della scrittura in Galilei dalla Istoria sulle macchie solari alle lettere copernicane", *Nuncius* IX (1994), 62-3. Pesce and Stabile see the letter to the Grand Duchess as one of the charter documents of the modern world: a call for the emancipation of scientific reflection from the forces of traditional religion and authority.

[I]n dealing with the teachings of Moses, do not think or say anything affirmatively... which is contrary to manifest evidence and arguments of philosophy or the other disciplines. For since every truth agrees with every other truth, the truth of Sacred Scripture cannot be contrary to the true arguments and evidence of the human sciences.⁷

Galileo does not claim that the Bible is silent about the world of nature. He observes that when we seek to examine what the Bible says about the physical world we must remember that, although the Bible cannot err, this inerrancy concerns the Bible's true meaning [*il suo vero sentimento*] and not what "its bare words" may signify [*che suona il puro significato delle parole*]. A slavish adherence to the "unadorned grammatical meaning" [*nel nudo suono letterale*] of any particular passage may lead to follies, error, and heresy. One may come to think, for example, that God has hands, feet, eyes, that He gets angry and is subject to other emotions. The Bible often contains passages written in a mode "to accommodate" these passages to "the capacities of the common people, who are rude and unlearned" [*per accommodarsi alla capacità del vulgo assai rozzo e indisciplinato* (Motta, p. 95)]. Too many translators of (as well as commentators on) these texts miss an important distinction. When Galileo refers to "il nudo" or "il puro" "significato delle parole", "il nudo suono letterale", or similar phrases, he does not mean the literal sense of scripture. As Aquinas and others had observed, the literal sense of the Bible, which is always true, is what God intends the words to mean. The literal sense includes metaphors, similes, and other figures of speech. Thus, in the famous example of Scripture's speaking of God's stretching out His hand, the literal sense means God's power. Galileo distinguishes between a naive literalism and "il vero sentimento" of the text. The literal sense is not always the same as what the bare words signify. Galileo, thus, is embracing, not challenging, a traditional Catholic principle of biblical exegesis. Galileo argues that the principle of accommodation requires that "wise expositors [of Scripture] must work to disclose the true senses [of biblical texts] and indicate the specific reasons why these senses are expressed in the words that they are".⁸ Indeed, it is a principle affirmed not only by Augustine and Aquinas, but by all sixteenth and seventeenth century Catholic theologians.⁹

⁷ *Commentariorum et disputationum in Genesim...*, I, 10-13, quoted in Richard Blackwell, *Galileo, Bellarmine, and the Bible* (University of Notre Dame Press, 1991), 21-2.

⁸ "...i saggi espositori ne produchino i veri sensi, n'additino le ragioni particolari, per che e'siano sotto cotali parole proferiti. Ed a questa dottrina così trita e specifica appresso tutti i teologi, che superfluo sarebbe il produrne attestazion alcuna". Galileo Galilei, *Lettera a Cristina di Lorena*, edited by Franco Motta. Genova: Marietti, 2000, 95-6.

⁹ Cardinal Bellarmine was well aware of the difficulties in discovering the truths in Scripture. Every sentence in the Bible has a literal or historical meaning, i.e., "the meaning which the words immediately present". The literal meaning is either *simple*, "which consists of the proper meaning of the words", or *figurative*, "in which words are transferred from their nat-

On the basis of such distinctions between what the bare words signify and the true sense of the Bible (and the examples Galileo uses concern passages in the Bible which attribute certain human attributes to God, and with which obviously Bellarmino and theologians of the Inquisition would agree), Galileo, with rhetorical deftness, advances a *wider*¹⁰ argument:

ural signification to another.” When the Bible refers to “the right hand of God”, the simple literal sense would mean a part of God’s body; whereas the figurative literal sense means God’s power. There are as many different types of figurative meanings as there are types of literary figures, but all these figurative meanings are part of the literal sense of Scripture. Blackwell notes that Bellarmino distinguishes the literal sense (with all its senses) from the “spiritual” or “mystical” sense, which involves a reference to something else other than what the words immediately signify. The spiritual sense is in addition to the literal sense, not a substitute for it. Bellarmino distinguishes three distinct spiritual senses: 1) the allegorical (signifies something pertaining to Christ or the Church); 2) the tropological (signifies something which pertains to morality); and 3) the anagogical (signifies something which pertains to eternal life). Richard J. Blackwell, 33-34. See also, R. Fabris, *Galileo Galilei e gli orientamenti esegetici del suo tempo* (Pontifical Academy of Sciences, 1986), 34-36. Bellarmino had argued (1586) that serious exegetical errors can arise “either by reading figuratively what should be taken as simply literal or by reading as simply literal what should be taken as figurative”. The Cardinal was always careful to note that we must distinguish between *res quae dicuntur* and *modus quo dicuntur*. In this respect he was following a tradition which can be seen from Augustine on. In a dispute concerning divine inspiration, with a professor (Estius) at Douai, Bellarmino rejects the view that there is a single literal/historical sense. In defending his view of the plurality of literal senses, Bellarmino liked to quote Augustine’s observation about his [Augustine’s] own reading of Scripture: *in ipsis sanctis Scripturis multo nescio plura quam scio*. “...Bellarmin, dans la tradition augustinienne, précise bien qu’elles [les deux Testaments] sont susceptibles de *plusieurs* sens littéraires (figurés)”. Jean-Robert Armogathe, “La vérité des Ecritures et la nouvelle physique”, *Le Grand Siècle et la Bible* (ed. by Jean-Robert Armogathe) Paris: Beauchesne, 1989, 50. See Ugo Baldini, “L’astronomia del cardinale Bellarmino,” in *Novità celesti e crisi del sapere* (ed. by Paolo Galluzzi) Firenze: Giunta Barbèra, 1984, 293-305 and also “Bellarmino tra vecchia e nuova scienza: epistemologia, cosmologia, fisica”, in *Roberto Bellarmino: Arcivescovo di Capua, Teologo e Pastore della Riforma Cattolica*, Capua (1990).

¹⁰ Ugo Baldini thinks that Galileo’s wider application of the principle of accommodation was unacceptable to Bellarmino because the cardinal embraced a Mosaic physics instead of an Aristotelean cosmology: “La lettura fondamentalistica del *Genesi* e di altri testi biblici che autorizzava la scissione tra ‘fisica mosaica’ e cosmologia aristotelica imponeva dunque al cardinale il rifiuto della più radicale tra le innovazioni astronomiche, il principio eliocentrico... Le proposte galileiane non potevano non entrare in rotta collisione con la visione bellarminiana del nesso Scrittura- scienza: per Galileo i passi biblici di contenuto astronomico andavano interpretati in modo da risultare congruenti con risultati ottenuti per via scientifica, che così costituivano un *prius* logico; se non consentivano simile interpretazione quei passi erano da considerare metafore, o casi di adeguamento ad espressioni consuete...”. Bellarmino agrees that the interpretation of the Bible cannot contradict demonstrated truths. “Ciò che varia dal cardinale a Galileo è l’estensione applicativa del criterio; per Bellarmino questa ha un limite nel significato letterale d’un testo, che ove appaia evidente e univoco non può essere forzato o negato: in altri termini, egli esita ad attribuire carattere metaforico ad enunciati che si presentano come descrizioni fisiche, ed ancor più a vedervi espressioni ‘accomodate all’uso del volgo’, come propone Galileo, perché questo ne implica la falsità letterale... La ‘fisica mosaica’, ricondotta dalla filologia ai suoi contorni effettivi, svelava fatti oscurati a lungo da soprapposizioni dottrinali; come per Galileo, anche per il cardinale la concordanza tra Scrittura

...whenever the Bible has occasion to speak of any physical conclusion [*alcune conclusioni naturali*] (especially those which are very abstruse and hard to understand), the rule has been observed of avoiding confusion in the minds of the common people which would render them contumacious toward the higher mysteries... Who, then, would positively declare that this principle [of accommodation] has been set aside, and the Bible has confined itself rigorously to the bare and restricted sense of its words [*i puri ristretti significati delle parole*], when speaking but casually of the earth, of water, of the sun, or of any other created thing?...

[Therefore]... in discussions of physical problems [*problemi naturali*] we ought to begin not from the authority of scriptural passages [*non si dovrebbe cominciare dalle autorità di luoghi scritte*], but from sense experience and necessary demonstrations [*ma dalle sensate esperienze e dalle dimostrate necessarie*]... It is necessary for the Bible, in order to be accommodated to the understanding of every man [*per accomodarsi all'intendimento dell'universale*], to speak many things which appear to differ from the absolute truth [*dal vero assoluto*] so far as the bare meaning of the words [*al nudo significato delle parole*] is concerned.¹¹

Although many passages from the initial 1613 letter to Benedetto Castelli appear verbatim in the 1615 letter to the Grand Duchess, several changes

e natura era un assioma, ma l'indagine umana sulla seconda (fallibile, come mostrava il collasso del cosmo aristotelico) trovava un fondamento di verità in espressioni non equivoche della prima". Baldini, "L'astronomia del cardinale Bellarmino", in *Novità celesti e crisi del sapere* (ed. by Paolo Galluzzi) Firenze: Giunta Barbèra, 1984, 293-305, at 303 and 304. Baldini also thinks that in Galileo's extension of the principle of accommodation to biblical discussions of physical phenomena there is a clear break with the hermeneutical principles of Cardinal Bellarmino. According to Baldini, Bellarmino places physical phenomena in the same category as historical events and, thus, will not grant the possibility of their being interpreted in a figurative sense: "...essa porta a ritenere che, se una frase enuncia un evento nel suo puro senso fisico, e non in uno metaforico or simbolico, non è lecito attribuirle un significato diverso da quello che risulta possibili, infatti, si dovrebbe ammettere che Dio non ha curato che la rivelazione fosse interpretabile univocamente, o perfino che essa include affermazioni non vere, cosa che le *Controversiae* [II, c. xii] escludono espressamente". Ugo Baldini, "Bellarmino tra vecchia e nuova scienza: epistemologia, cosmologia, fisica", in *Roberto Bellarmino: Arcivescovo di Capua, Teologo e Pastore della Riforma Cattolica*, Atti del Congresso Internazionale di Studi (a cura di Gustavo Galeota) Capua: Istituto Superiore di Scienze Religiose (1990), Vol. 2, 660-1.

Baldini does admit, ultimately, that Bellarmino and Galileo do share common ground in their exegetical stances, but Bellarmino, concerned with defending the authority of the Church (and the traditional interpretation of Scripture) was not well-disposed to entertain sympathetically Galileo's arguments. The principles of biblical exegesis affirmed by Galileo "entro in una stessa gamma di atteggiamenti [with those of Bellarmino], dei quali il suo fissa l'estremo di massima elasticità, mentre l'altro di massima rigidità. Tale gamma, nel suo insieme, individua un atteggiamento che per brevità si può dire concordista". Baldini (1990), 670.

¹¹ Motta, 96.

indicate Galileo's awareness of subtle theological distinctions. If we compare the opening of the second passage I have just cited with the parallel passage in the letter to Castelli, we see that in 1613 Galileo wrote that in disputes about nature one ought to reserve an appeal to biblical authority to last place [*doverebbe esser riserbata nell'ultimo luogo*]. The passage in the 1615 letter to Christina continues, employing the same phrases found in 1613 concerning the inexorable and immutable character of nature and that one ought not to call into question what we come to know by sensory experience or necessary demonstrations on the basis of scriptural passages "whose words appear to have a different meaning" [*che avessero nelle parole diverso sembiante*]. The passage in 1615 is taken essentially word for word from 1613, with the significant addition that we ought not only avoid calling into question these conclusions about nature, we surely ought not to condemn them [*non che condannato*]. Galileo is obviously aware of the danger of the Inquisition's acting foolishly.

In explaining that the purpose of the Bible is to lead men to salvation and not to disclose information extraneous to that purpose, Galileo writes the following to Castelli in 1613:

I should believe [*Io credereï*] that the authority of the Bible had *only* the aim of persuading [*l'autorità delle Sacre Lettere avesse avuto solamente la mira a persuadere*] men of those articles and propositions which, being necessary for salvation [*sendo necessarie per la salute loro*] and surpassing all human reason [*superando ogni umano discorso*], could not be made credible by another science, or by other means [*non potevano per altra scienza né per altro mezzo farcisi credibili*], than through the mouth of the Holy Ghost itself [*che per la bocca dell'istesso Spirito Santo*].¹²

In the letter of 1615, Galileo alters this passage; he writes:

¹² Two paragraphs before this passage, after Galileo has noted that in discussions of natural phenomena biblical passages ought to be reserved to last place, he says that, because Scripture (unlike nature) must be accommodated to the understanding of every man, it may say "many things which are different from the absolute truth [*proposizioni le quali quanto al nudo senso delle parole hanno aspetto diverso dal vero*] –but in the text the Inquisition had, one reads: *nella Santa Scrittura si trovano molte proposizioni false quanto al nudo senso delle parole*], in appearance and in regard to the meaning of the words... Indeed because of the aim of adapting itself to the capacity of the unrefined and undisciplined peoples, the Scripture has not abstained from somewhat concealing its most basic dogmas [*non s'è astenuta la Scrittura d'adombrare* [*pervertire* in the text the Inquisition had] *de'suoi principalissimi dogmi*], thus attributing to God himself properties contrary to and very far from his essence; so who will categorically maintain that, in speaking even incidentally of the earth or the sun or other creatures, it abandoned this aim and chose to restrict itself rigorously within the limited and narrow meanings of the words [*i limitati e ristretti significati delle parole*]? This would have been especially problematic when saying about these creatures things which are very far from the primary function [*dal primario istituto*] of the Holy Writ, indeed things which, if said and put forth in their naked and unadorned truth, would more likely harm its primary intention [*l'in-*

I should judge [*Stimerei*] ... that the authority of the Bible had the aim *principally* of persuading [*l'autorità delle Sacre Lettere avesse avuto la mira a persuadere principalmente*] men of those articles and propositions which, surpassing all human reasoning, could not be made credible by another science, or by other means, than through the mouth of the Holy Ghost.¹³

In 1613, Galileo wrote that the purpose of the Bible was *only* [*solamente*] to persuade men of those truths which surpassed human reason. In 1615, he changes the adverb to “principally” [*principalmente*]; thereby, he does

tenzion primaria] and make people more resistant to persuasion about the articles pertaining to salvation”. (Finocchiaro, 50; Ferdinando Flora (ed.), Galileo Galilei, *Lettere* (Einaudi, 1978), 104-5. It is interesting that in this passage Galileo speaks of the “primary function” of Scripture, whereas in the key text, a paragraph later, cited in the body of this paper, he will say that the authority of the Bible has *only* the aim of persuading men of propositions concerning salvation. For a good analysis of the “Letter to Castelli”, see Andrea Battistini, *Galileo e i Gesuiti: Miti letterari e retorica della scienza*. Milano: Vita e Pensiero, 2000.

Mauro Pesce traces the reception of Galileo’s hermeneutical principles in Europe — the way, that is, Galileo’s biblical hermeneutic is perceived by both his friends and enemies: “Questo complesso e contraddittorio processo di ricezione, che dura poi due secoli, è testimoniabile anche nella storia delle edizioni, traduzioni e riedizioni degli scritti galileiani. Ma gli studi recenti hanno anche mostrato che la stessa elaborazione teorica galileiana non è stata univoca tanto che la linea seguita della lettera al Dini di 23 marzo 1615 non è quella principale espressa nelle lettere al Castelli e a Cristina, mentre perfino in queste due lettere, la linea ermeneutica che distingue la natura della verità scientifica da quella biblica viene affiancata nella parte finale delle due composizioni, da una apparentemente diversa e contraddittoria opzione ermeneutica di tipo concordistico”. M. Pesce, “Una nuova versione della lettera di G. Galilei a Benedetto Castelli”, *Nouvelles de la République des Lettres* (1991 -I), 90.

Pesce’s discovery of a Latin text of the letter to Castelli in an appendix to the *Apologia* of Gassendi, published in Lyons in 1649, suggests an intermediate text between the 1613 letter and the 1615 letter to Christina. It also sheds light on the traditional interpretation which claims that the letter the Inquisition had was falsified by Dominicans such as Lorini and Caccini. Pesce’s conclusion is: “In primo luogo, è ormai chiaro che Galileo, in alcuni casi, ha scritto versioni diverse della medesima lettera per raggiungere volta a volta gli scopi che riteneva potessero essere meglio ottenuti variando questa o quella frase, questo o quel contenuto a seconda dell’interlocutore. Alla luce di questo inoppugnabile dato, diventa anche più chiaro la considerevole mole di varianti letterarie delle lettere galileiane. Il farne copia costituiva in qualche modo una nuova riscrittura. Le lettere erano uno strumento di difesa e rispondevano a una strategia complessa. In particolare, è finalmente possibile impostare in modo nuovo la questione della diversa versione della copia della lettera a Castelli inviata dai domenicani a Roma e attualmente agli atti del processo: la copia che Favaro ha indicato con la sigla Pr. Non si tratta più solo dell’alternativa tra una versione eventualmente falsificata da un copista domenicano e una versione originale attestata da tutti gli altri testimoni. Bisogna invece prendere in seria considerazione una diversa ipotesi, che cioè lo stesso Galileo abbia riscritto diverse volte e in diversi modi la medesima lettera. E del tutto verosimile che le varianti teologicamente attaccabile di Pr siano autenticamente galileiane e che Galileo e Castelli siano riusciti a ritrarre tutti le copie che di quella prima versione erano state fatte, sostituendole con altre. Il Santo Uffizio non riuscì mai ad entrare in possesso dell’originale nonostante le accurate ricerche”. Pesce (1991), 104-5.

¹³ Motta, 97.

not exclude from the purpose of the Bible the revelation of truths which are within the realm of human reason. Notice, also, that the 1615 text omits the phrase “being necessary for salvation”; thus, in these changes Galileo eliminates a restriction concerning the subject of the articles and propositions which come under the “authority of the Bible”. I think that these changes are significant for two reasons. First, with Aquinas, Galileo could now allow that some truths about God and man necessary for salvation which can be known by reason are also revealed in Scripture. Second, he admits that there may be truths in the Bible which are not directly connected to the Bible’s purpose of leading human beings to salvation. Mauro Pesce refers to this passage from the letter to the Grand Duchess as an example of Galileo’s radical break with traditional Catholic biblical exegesis. According to Pesce, Galileo rejects granting any authority to the Bible in matters scientific. Pesce seems to understand *principalmente* as *solamente*, but, as we have seen, Galileo himself changed *solamente* to *principalmente*.¹⁴ The passage in the 1615 letter comes immediately after Galileo has advanced the argument concerning not using biblical passages to call into question what sense experience and necessary demonstrations tell us about nature. He notes that this argument ought not to leave the impression that he does not have the highest regard [*somma considerazione*] for Scripture. Indeed, he says that after “becoming certain of some physical conclusions we ought to use them as very appropriate aids for the true interpretation of Scripture and for the investigation of the truths these [passages of Scripture] must contain, for they are most true and agree with demonstrated truths [*concordi con le verità dimostrate*]”.¹⁵

It is important to recognize the Catholic tradition in which Galileo participates. The letter to Christina is richly laced with quotations from the Church Fathers, principally Augustine, all left in Latin: passages which lend authority to his arguments. The passages quoted reinforce the general principles of the complementarity of science and scripture, and the need to avoid naive, literalistic interpretations of the sacred text.

There is something more in Galileo’s arguments, more than the tradi-

¹⁴ “L’affermazione è radicale: l’autorità della Scrittura riguarda ‘articoli e proposizioni’ che *superano ogni umano discorso*, cioè: l’autorità della Scrittura riguarda *solo* [my emphasis] le verità *irraggiungibili* con la scienza umana. Tutto ciò che può essere dimostrato razionalmente viene sottratto all’autorità della Bibbia”. Thus, for Pesce, Galileo affirms a “disomogeneità epistemologica tra Scrittura e natura che non si può usare la Scrittura nelle ‘disputi di problemi naturali’... In sostanza, la Scrittura è limitata in due modi convergenti: negli argomenti, e cioè fede costumi salvezza, e per il modo di conoscenza, perchè non rientra sotto la sua autorità tutto ciò che può essere dimostrato scientificamente”. “L’interpretazione della Bibbia nella lettera di Galileo Galilei a Cristina di Lorena a la sua ricezione”, *Annali di storia dell’esegesi*, 4 (1987), 250-1.

¹⁵ “...venuti in certezza di alcune conclusioni naturali, doviamo servircene per mezzi accomodatissimi alla vera esposizione di esse Scritture, ed all’investigazione di quie sensi che in loro necessariamente si contegono, come verissimi e concordi con le verità dimostrate”. Motta, 97.

tional affirmation that God is the author of the book of nature and the book of scripture and that the truths of nature and the truths of scripture cannot really be in conflict. In the letter to the Grand Duchess there is an additional argument, not well-developed in his earlier letters on the subject: an argument which concerns the role of science in discovering the true senses of those scriptural texts which address scientific questions. It is an argument we have seen in the last passage I quoted from the 1615 letter, but it is even more forcefully made in two other passages in 1615. In one passage he writes:

When one is in possession of knowledge about questions of nature which are not matters of faith, based on indubitable demonstrations or sensory experience, since such knowledge is also a gift from God, one must apply it to the investigation of the true meanings [*veri sensi*] of Scripture in those places which apparently seem to read differently. These senses would unquestionably be discovered by wise theologians [*indubitatamente saranno penetrati da' sapienti teologi*], together with the reasons for which the Holy Ghost sometimes wished to veil itself under words with a different meaning [*velare sotto parole di significato diverso*].¹⁶

In 1613 Galileo makes the point in this way: after invoking the principle of accommodation and the view that truth cannot contradict truth, he says that “it is the task of wise interpreters to strive to find [*affaticarsi per trovare*] the true meanings of scriptural passages agreeing [*concordanti*] with those physical conclusions of which we are already certain and sure from manifest sense evidence or from necessary demonstrations”.¹⁷ In the parallel passage in 1615, he writes, in a much stronger sense, that wise expositors must seek to penetrate [*penetrare*] the true meanings of scriptural passages, which meanings would be indubitably in agreement [*indubitabilmente saranno concordanti*] with our knowledge of nature.¹⁸ Galileo argues that there is

¹⁶ “Di qui [text from Augustine, *De Genesi ad literam*] e da altri luoghi parmi (s’io non m’inganno) l’intenzion de’ s.ti Padri essere che nelle quistioni naturali, e che non sono *de fide*, prima si deva considerare se elle sono indubitabilmente dimostrate, o con esperienze sensate conosciute, o vero se una tal cognizione e dimostrazione haver si possa, la quale ottenendosi, et essendo ella ancora dono di Dio, si deve applicare all’investigazione de’ veri sensi delle Sacre Lettere, in quei luoghi che in apparenza mostrassero di suonar diversamente; quali indubitatamente saranno penetrati da’ sapienti teologi, insieme con le cagioni per che lo Spirito S.to gli habbia volsuti tal volta, per nostro esercizio, o per altra a me recondita ragione, velare sotto parole di significato diverso”. Motta, 121.

¹⁷ Stante questo, ed essendo di più manifesto che due verità non posson mai contrarsi, è ofizio de’saggi espositori affaticarsi per trovare i veri sensi de’luoghi sacri, concordanti con quelle conclusioni naturali delle quali prima il senso manifesto o le dimostrazioni necessarie ci avesser resi certi e sicuri”.

¹⁸ “Stante questo, ed essendo (come si è detto) che due verità non possono contrariarsi, è officio de’saggi espositori affaticarsi per penetrar i veri sensi de’ luoghi sacri, **che indubitabilmente saranno concordanti** con quelle conclusioni naturali, delle quali il senso manifesto e le

not simply a complementarity between the Bible and science, in that the truth of one cannot contradict the truth of the other, but that there also must be a concordance between science and those passages in the Bible which appear to make claims about the physical nature of the universe.

Frequently, scholars have been troubled by what they consider to be an inconsistency between what they see as Galileo's claim that the Bible is not relevant to the natural sciences and Galileo's use of passages such as the one from the Book of Joshua to support Copernican astronomy. Mauro Pesce quite correctly observes that we ought to recognize the strategic or rhetorical unity of the letter to Christina; Galileo was employing every argument at his disposal to persuade the Inquisition not to condemn the new astronomy. It seems to me that, in addition, the alleged ambiguities or inconsistencies are significantly reduced once we recognize that Galileo does **not** in fact ever claim that the purpose of the Bible **excludes** the revelation of truths about nature.¹⁹

In the letter to Christina, Galileo concludes his exegesis of the story of Joshua's commanding the sun to stand still by pointing out that theologians who now find biblical statements contrary to Copernican astronomy do so

dimostrazioni necessarie ci havessero prima resi certi e sicuri". Motta, 104-5. Maurice Finocchiaro translates the key portion of this passages as: "to strive to **fathom** the true meaning of the sacred texts; **this will undoubtedly agree** with those physical conclusions of which we are already certain and sure through clear observations or necessary demonstrations..." (*The Galileo Affair: A Documentary History*, 96.) In an important footnote to this passage, Franco Motta writes: "A questo punto, la gerarchia della perspicuità delle 'due verità' attraverso cui si manifesta l'opera divina, la natura e la Scrittura, risulta invertita: se tradizionalmente era quest'ultima a fornire un'immagine limpida della realtà terrena, di quella umana come di quella naturale, alle quale le scienze profane erano necessariamente tenute a conformarsi, ora solo nello spazio artificiale garantito dal metodo scientifico è possibile sfuggire al conflitto delle interpretazioni che rende inaffidabile il dettato biblico. È naturale che, in queste condizioni, il campo di iniziativa dei teologi sia drasticamente ridotto, stante la necessità di adeguarsi alle conclusioni delle discipline scientifiche: l'ermeneutica di Galilei, nonostante il costante e attento richiamo ai Padri, non può che essere percepita dall'ala della cultura ecclesiastica più chiusa al dialogo con il sapere laico come un progetto di eteronomizzazione della teologia; le cui prospettive sono, allo stato dei fatti, tutt'altro che chiare: 'chi vuol por termine alli umani ingegni?' si chiede l'autore poche righe più sotto, con una domanda retorica che probabilmente inquieta non poche 'pie orecchie', evocando il possibile ampliamento indefinito di un sistema di pensiero che si pone inanzitutto come normativo, e che punta a prevenire all'opera di Dio attraverso l'esclusivo canale delle sue opera (sul quale il monopolio della filosofia aristotelica è in palese difficoltà) anziché attraverso quello della sua parola (dove vige al contrario l'indiscussa tutela del magistero ecclesiastico come stabilito dal Concilio di Trento)". Motta (2000), n. 49, 105.

¹⁹ One such passage which has troubled commentators is the following. After quoting Augustine (*De Gen.* I, c. 21) that when experts demonstrate something about natural phenomena, theologians should show that these conclusions are not contrary to the Bible, "but whenever in their books they teach something contrary to Holy Writ, we should without any doubt hold it to be most false and also show this by any means we can", Galileo says: "These words imply, I think, the following doctrine: in the learned books of worldly authors are contained some propositions about nature which are truly demonstrated [*dimostrate veracemente*]

only because they consider the new astronomy to be false. But, these same theologians, who consider such passages incapable of being interpreted consistently with the new astronomy, as long as they regard it to be false [*mentre la reputan falsa*], would find highly congenial interpretations for these passages [*ne troverebbono interpretazioni molto ben congruenti*], if the new astronomy were known to be true and demonstrated [*vera e dimostrata*]. Such congenial or concordant interpretations would surely follow if these theologians “were to add some knowledge of the astronomical sciences to their expertise about Holy Writ”.²⁰

The key for theologians in Rome –as well as for astronomers and philosophers– is Galileo’s conditional statement: “quando ella fusse conosciuta per vera e dimostrata”. In the absence of such a demonstration, how ought the theologians to proceed? Despite all the rhetoric of necessary demonstrations throughout the letter to the Grand Duchess, Galileo never offers a demonstration for the motion of the earth. Galileo was convinced that he was on the verge of providing such a demonstration and he employed every argument at his disposal to try to prevent the Inquisition from condemning the new astronomy.

Galileo’s confidence in discovering the true senses of biblical passages concerning natural phenomena sets Galileo apart from the more circum-spect positions of Augustine and Aquinas.²¹ It is a confidence shared by Galileo’s opponents in the Inquisition, although they reached a different conclusion when they examined the particular case of Copernican astrono-

and others which are simply taught [*semplicemente insegnate*]; in regard to the former, the task of wise theologians is to show that they are not contrary to Holy Scripture; as for the latter, which are taught but not demonstrated with necessity, if they contain anything contrary to the Holy Writ, then they must be considered indubitably false and must be demonstrated such by every possible means. So physical conclusions which have been truly demonstrated should not be given a lower place than scriptural passages, but rather one should clarify how such passages do not contradict these conclusions; therefore, before condemning a physical proposition, one must show that it is not conclusively demonstrated”. Finocchiaro (1989), 101-2; Motta, 115-6.

²⁰ Motta, 143-4. In a March 1615 letter to Msgr. Piero Dini, a friend in Rome, who had advised Galileo about objections to Copernican astronomy from Cardinal Bellarmino based on verses from Psalm 19 in which the Sun “comes out” of the tent pitched for it by God and runs its course through the heavens, Galileo offers an elaborate exegesis of these verses, showing how the new astronomy allows one to read the biblical text with greater insight. Galileo observes: “when sacred texts have to be reconciled with new and uncommon physical doctrines, it is necessary to be completely informed about such doctrines, for one cannot tune two strings by listening to just one.” [“... quando si abbino a concordar luoghi sacri con dottrine naturali nuovi e non communi, è necessario aver intera notizia di tali dottrine, non si potendo accordar due corde insieme col sentirne una sola”. Flora, 119.]

²¹ Augustine and Aquinas think that in examining biblical passages concerning natural phenomena, which are not essential to the faith, the natural sciences can only tell us what the passages do not mean. Scientific knowledge serves as a kind of veto so that, for example, if it is not possible for there to be light without a luminous source we know that the initial light referred to in Genesis cannot be physical light.

my. The theologians of the Inquisition concluded [1616] that the claim that the sun was immobile and at the center of the universe was “foolish and absurd in philosophy, and formally heretical since it explicitly contradicts in many places the sense of Holy Scripture, according to the proper sense of the words and according to the common interpretation and understanding of the Holy Fathers and the doctors of theology”. The theologians also concluded that the claim that the earth moves was foolish and absurd in philosophy and “in regard to theological truth it is at least erroneous in faith”.²²

The first part of each of the two conclusions reached by the theologians of the Inquisition is that Copernican astronomy “is false and absurd” [*stultam et absurdam*] philosophically. Why should the theological experts of the Inquisition care whether Copernican astronomy is false scientifically? First of all, there is the ancient Catholic commitment to the safeguarding of reason since, as Aquinas would say, reason is a way to God. Aquinas, himself, will refer to those propositions about God, such as that He exists, which serve as preambles to faith. More importantly for our purposes, I think, is that these theologians were committed to a certain kind of complementarity between science and scripture. In reaching the conclusion that Copernican astronomy *contradicts* the Bible, the theologians accepted as incontrovertibly true a particular geocentric cosmology, and, on the basis of such an acceptance, they insisted that the Bible be read in a certain way. Thus, in part, they subordinated scriptural interpretation to a physical theory. They proceeded in this manner because, like Galileo, they were convinced that the Bible contained scientific truths and that, on the basis of what is known to be true in the natural sciences, one could discover the same truth in related biblical passages.²³

The focus of my remarks in this paper has been Galileo and biblical exegesis, and on this topic I made four major points: 1) both Galileo and his

²² “Omnes dixerunt dictam propositionem [that the Sun is immobile and at the center of the universe] esse stultam et absurdam in philosophia, et formaliter haereticam, quatenus contradicit expresse sententiis sacrae Scripturae in multis locis secundum proprietatem verborum et secundum communem expositionem et sensum Sanctorum Patrum et theologorum doctorum”. [S. Pagano, *I Documenti del Processo di Galileo Galilei* (Vatican City, 1984), 99 –punctuation added after “philosophia”.]

“Omnes dixerunt, hanc propositionem [that the Earth moves] recipere eandem censuram in philosophia; et spectando veritatem theologiam, ad minus esse in fide erronea”.

²³ Galileo’s theological claims are part of the traditional heritage of Catholicism, and, further, they are a part of the theological environment of the Counter Reformation Church. The Council of Trent’s injunctions concerning the proper reading of Scripture are accepted by both Galileo and the Inquisition. A crucial feature of the disputes of the Reformation was the calling into question by the Reformers of the very criterion of truth by which one resolves theological questions, *viz.*, the Catholic Church’s claim to be the authentic judge of all such disputes. Although Protestants and Catholics would disagree about the role of the Church as a criterion of truth, they could, however, and they did, appeal to a common text, the Bible: a text, which, in a sense, standing alone, served as the only common ground from which to

opponents in the Inquisition think that the *entire* Bible is the word of God, and cannot be wrong; 2) both Galileo and his opponents distinguish between a naïve literalism (attending only to *il nudo significato delle parole*) and the true meaning (*il vero sentimento*), the authentic literal sense, of the biblical text; 3) both Galileo and his opponents think that the Bible contains scientific truths about natural phenomena; and 4) both Galileo and his opponents think that wise expositors of Scripture are able to discover for sure what the Bible says about natural phenomena. On the related, but different, question of what role the Bible should play in investigating natural phenomena, there are differences between Galileo and his opponents.²⁴

argue. Both sides, thus, were encouraged to find in the Bible evidence for their respective theological conclusions. The Bible, therefore, came to be treated as a reservoir of conflicting theological propositions, of proof-texts to be used in arguments against one's opponents. As a result of such a "propositionalization" of the Bible, Protestants and Catholics tended to treat the Bible as a theological text book: a compendium of syllogisms or dogmatic propositions. One of the obvious dangers in viewing the Bible as a text book in theology is a literalistic reading of the text: a literalism which was all too apparent in the Inquisition's reaction to the perceived threat of the new astronomy. Do we not see a similar tendency in Galileo's insistence that we can discover scientific propositions in the Bible? Armed with scientific demonstrations we, or at least wise expositors, possess the key to discover those scientific propositions which are contained in the Bible.

²⁴ The question of Galileo's commitment to an autonomy of the natural sciences in relation to biblical authority is a different (although related) question from his principles of biblical interpretation. I think that in this regard, Galileo is reaffirming the traditional Catholic principle of the appropriate autonomy of the natural sciences and applying it to the discussion of the new astronomy, arguing that it would be a mistake to condemn the new astronomy on the basis of biblical passages whose meaning might very well be different from "il nudo significato delle parole". Galileo's adversaries, to the extent that they too participate in the general Catholic understanding that two truths cannot contradict one another, and to the extent that they think—with Galileo—that there are scientific demonstrations, embrace, at least in theory, the appropriate autonomy of the natural sciences. I would distinguish between a *theoretical* agreement (with some differences in emphasis) and a *practical* disagreement. Galileo's practical advice about what one must do before condemning a proposition as heretical is an example of how one ought to apply the general principle of the appropriate autonomy of the natural sciences. The theologians of the Inquisition did not proceed in this manner, but I think that this failure on their part is a practical one (albeit, an important practical one), not a theoretical one. I do not think that the way the theologians proceeded is the result of some fundamental difference in first principles about the relationship between science and Scripture. It is not so much the result of a diverse interpretation of the relationship between nature and Scripture, as it is a fundamental disagreement about the scientific status of the new astronomy and the practical question as to whether enough thinking or research has been done about the question before one condemns it as heretical. Again, I think that the theologians of the Inquisition acted precipitously in condemning the propositions which they did, but I do not think that the view, that it is appropriate *in principle* to condemn propositions about natural phenomena because they contradict what the Bible (properly interpreted) says, separates the theologians in any fundamental way from Galileo. Although a "modern" view concerning the appropriateness of ever condemning as heretical propositions about natural phenomena might well be quite different from the justification offered by the Inquisition, I do not think that Galileo shares such a modern view.

Galileo argues that one should not begin from biblical texts in seeking to discover the truths of nature. His opponents are willing to begin from such passages, in the sense of asking questions about nature based on claims they find in the Bible. But, at least in principle, they are not willing *both to begin and to end* with scriptural passages. Passages from Genesis, for example, lead to questions about the nature of light, about waters above the firmament, etc., questions which then call upon the natural sciences for reflection. Galileo, surely, has a different emphasis. Although Galileo is not willing to begin from biblical passages, he is not willing to ignore such passages either; in fact, he thinks that wise expositors can, without doubt, discover the true meanings of these passages. The view that we can discover the true meanings of biblical passages which deal with natural phenomena is shared by Galileo and his opponents, and, as I have indicated, separates them from the more circumspect positions of Augustine and Aquinas. Galileo as interpreter of the Bible does not so much anticipate some modern distinction between the religious character of the Bible and the claims of science as he embraces ancient traditions of Catholic theology and also affirms principles of biblical exegesis characteristic of Counter Reformation Catholicism.

