

The Hebrew University of Jerusalem
Faculty of Humanities · Institute of Arts
THE JEWISH MUSIC RESEARCH CENTRE
in collaboration with the Jewish National and
University Library

Executive Board

Jefim Schirmann, Chairman
Israel Adler; Moshe Barasch; Menachem Elon
Shelomo Morag; Amnon Shiloah; Reuven Yaron

Director: *Israel Adler*

YUVAL (SERIES)

STUDIES OF
THE JEWISH MUSIC RESEARCH CENTRE

Edited by
ISRAEL ADLER and BATHJA BAYER

VOLUME III

This publication is one of the projects of the Centre which have been made possible
thanks to grants from

The Ministry of Education and Culture, Department of Culture and Arts

The Memorial Foundation for Jewish Culture

The Fannie and Max Targ Research and Publication Fund at the Centre

The Cantors Assembly Research and Publication Fund at the Centre

A group of Friends of the Hebrew University in Italy, headed by Dr. Astorre Mayer, Milano

JERUSALEM, 1974

THE MAGNES PRESS, THE HEBREW UNIVERSITY

POSTSCRIPT

While this study was already in print, the writer obtained further confirmation for the correspondence *Sefer ba-Haspaqah* = *Kitāb al-kāfi*. Examination of the books titled *al-kāfi* shows that this word was chosen to designate an abridged or condensed version of a more comprehensive work. Thus, for instance, the condensed version of the Hebrew Grammar *Kitāb al-muštamil* . . . by Abū al-Farraj Hārūn (ca. 1026) was called *Kitāb al-kāfi* . . . (see EJ², vol. 16, col. 1381; *ibid.*, vol. 2, col. 178). The works of this Karaite grammarian, a contemporary of Abū l-Šalt, were also well-known in Spain. Such a designation, which may be translated as *compendium*, is appropriate to Abū l-Šalt's treatise since it is in fact a condensed version of Al-Fārābī's *Great Book of Music*. It is open to conjecture whether the treatise was called thus by the author himself or by his readers.

JUBAL IN THE MIDDLE AGES*

JUDITH COHEN, *Tel Aviv*

Mediaeval treatises on music usually begin with a series of stereotype questions and answers, very often in the following order: (1) *Quid sit musica*, (2) *unde dicetur*, (3) *a quibus sit inventa*. The answers amount to a more or less comprehensive inventory of the various definitions of music, its subdivisions, its effects, its etymology and its inventors.

Two figures have claimed the right of being the first inventors of music: Pythagoras, the first to have defined sound and sound relations in numerical proportions, represents the classical view on the beginnings of musical science. Jubal, "the father of them that play upon the harp and the organ," steps out of ancient, antediluvial times in Genesis IV together with his brother Jabel ("father of such as dwell in tents and of herdsman"), his half-brother Tubalcain ("a hammerer and artificer in every work of brass and iron") and a half-sister Noema, of whom the Bible, at least, says nothing¹.

It was Isidore of Seville who, in seeking to establish a correspondence between the classical and the Christian worlds, set Biblical figures in parallelism to heroes of the heathen world. Thus we read in chapter 16 of his *Etymologiarum sive originum libri XX*, book iii (compiled between 622 and 633):

Moses says that the inventor of the art of music was Tubal, who was of the race of Cain, before the flood. The Greeks say that Pythagoras found its beginnings in the sound of hammers and the striking of stretched strings. Others report that Linus the Theban and Zethus and Amphion were the first to become illustrious in musical art².

*I would like to express my thanks to Dr. Bathja Bayer, who generously shared with me the literature she had accumulated for her own work on this subject. Dr. Bayer intends to prepare a study on the mythological and iconographical aspects of Jubal as the Father of Music.

¹ Genesis IV, 20-22: (20) Genuitque Ada Jabal, qui fuit pater habitantium in tentoriis atque pastorum. (21) Et nomen fratris ejus Jubal: ipse fuit pater canentium cithara et organo. (22) Sella quoque genuit Tubalcain qui fuit malleator et faber in cuncta opera aeris et ferri. Soror vero Tubalcain Noemma.—The manuscript tradition varies the spelling of the names of Lamech's sons. Some of the forms are as follows (the first two are those of the Septuagint and of the Vetus Latina): For Jabel: 'Ιωβήλ, Iobel, Tobel, Iobab, Iabel. For Jubal: 'Ιουβάλ, Iobal, Iobel, Tubal, Iubal. For Tubalcain: Θόβελ, Tobel, Tubal, Iobel, Iubalcain, Tubalcain.—A clear differentiation between the three brothers in mediaeval mss is made even more difficult by the similarity of the letters i and t. We will thus often find "Tubal" for "Jubal". Cf. also notes 2 and 3.

² Moyses dicit repertorem musicae artis fuisse Jubal, qui fuit de stirpe Cain ante diluivium.

Future generations often reiterated the harmonistic view of music's origin, some in literal agreement with Isidore, others suggesting a varying list of inventors. But with certain writers, mainly those coming from ecclesiastical circles, the problem of the inventors of music seemed to focus around two figures, those of Jubal and Pythagoras. And while Isidore advocated a correspondence of the two musicians, with the primacy of the first one, others sought to render a plausible explanation for their fusion into one³.

The Sources

One of the central medieval texts which discussed the problem at length was the commentary on Genesis IV, 20–22, found in Peter Comestor's *Historia Scholastica*. A native of Troyes, Peter Comestor became chancellor at the newly erected Notre-Dame cathedral in Paris (1164–68) and lecturer at the cathedral school, which was later to form the nucleus of the University of Paris. His *Historia* was a widely read textbook of world chronology, more used by students in the Middle Ages than the Bible itself. His commentary on the Old Testament was imbued with Jewish and Hellenistic views, mainly taken from Josephus Flavius, Pseudo-Philo, Jerome, fragments of Methodius and Pseudo-Methodius and other sources which have not yet been identified⁴. A great synchronizer and collector of facts on Biblical archaeology, the "Master of Histories," as he was called, had an important impact on mediaeval art and literature and, as we shall see, on musical thought as well. His passage on the three sons of Lamech runs as follows⁵:

Graeci vero Pythagoram dicunt hujus artis invenisse primordia, ex malleorum sonitu, et cordarum extensione percussa. Alii Linum Thebaeum, et Zethum, et Amphione in arte musica claruisse ferunt.—Latin text quoted after MPL, LXXXIII, 165. English translation in O. Strunk, *Source Readings in Music History* (New York, 1950), p. 94. Strunk used W. M. Lindsay's Latin text edition (Oxford, 1911), which has Tubal instead of Jubal.—For Isidore's "System of Correspondence" (*Entsprechungssystem*) cf. E. R. Curtius, *Europäische Literatur und lateinisches Mittelalter*, (Bern, 1954²), p. 447–52.

³ The question of Pythagoras versus Jubal is discussed at length by H. Oppermann, "Eine Pythagoraslegende", in *Bonner Jahrbücher*, 130 (1925): 285–301.—P. E. Beichner, *The Medieval Representative of Music: Jubal or Tubalcain?* (Notre-Dame, Indiana, 1954) elucidates the current contamination Jubal-Tubal-Tubalcain (see also note 1), and traces the mediaeval tradition of "Jubal and the hammers".—Except for two central texts, I shall refrain from dwelling on sources already quoted by Oppermann and Beichner, unless my interpretation differ from theirs.

⁴ On Comestor's general indebtedness to Jewish and Christian writers cf. B. Smalley, *The Bible in the Middle Ages* (Notre-Dame, Indiana, 1955²), p. 214–42. Cf. also S. R. Daly, "Peter Comestor, Master of Histories", in *Speculum*, 32 (1957): 62–73.—H. Hailperin, in his *Rashi and the Christian Scholars* (Pittsburgh, 1963), p. 107 ff., claims Jewish influence on Comestor, but does not support his argument with evidence.—H. Vollmer, in his preface to *Eine Deutsche Schulbibel* (Leipzig, 1925), p. xxix, indicates additional sources for Comestor's *Historia*.

⁵ MPL, CXC VIII, col. 1079: "Genuitque Ada Jabel", qui adinvenit portatilia pastorum

"And Ada brought forth Jabel", who invented the shepherds' portable tents for the changing of pastures. He also arranged the herds and divided them according to their character, separating by species lambs from kids, by quality unicoloured from spotted ones and by age young ones from old ones⁶. He also knew how to join them at certain times. "And his brother's name was Tubal; he was the father of them that play upon the harp and the organ". He was not, indeed, the inventor of instruments, for they were invented long afterwards⁷, but the inventor of music, that is of consonances, so that pastoral labour might be turned into delights. And as he heard Adam's prophecy of the two judgements, so that the invented art would not perish, he inscribed the art on two pillars, complete on each, as Josephus says. One pillar was made of marble, the other of brick, so that the one would not be washed away by the flood, the other not be dissolved by fire. The pillar of marble, according to Josephus, is still existing in the land of Syria⁸. "And Sella brought forth Tubalcain", who was the first inventor of the art of iron. He skillfully exercised the art of war and made sculptures out of metalwork for the delight of the eyes⁹. While he was working, Tubal, whom we have mentioned above, delighted in the sound of metals and devised out of their weights the proportions and consonances which originated in them. This invention has erroneously been attributed by the Greeks to Pythagoras. Through his work he (Tubalcain) also learned how to work with bushes, that is how to carve in metals. For when he set fire to the bushes in the fields, the metallic veins flowed into the rivers and the raised plates brought back the shapes of the places in which they were lying. "And the sister of Tubalcain was Noema", she invented the art of various textiles.

tentoria ad mutanda pascua, et greges ordinavit, et characteribus distinxit, separavitque secundum genera greges ovium a gregibus hoedorum, et secundum qualitatem, ut unicolores a grege sparsi veleris, et secundum aetatem, ut anniculos a maturioribus, et commissuras certis temporibus faciendas intellexit. "Nomen fratris ejus Tubal, pater canentium in cithara, et organo". Non instrumentorum quidem, quae longe post inventa fuerunt, sed inventor fuit musicae, id est consonantiarum, ut labor pastoralis quasi in deliciis verteretur. Et quia audiebat Adam prophetasse de duobus judiciis, ne periret ars inventa, scripsit eam in duabus columnis, in qualibet totam, ut dicit Josephus, una marmorea, altera latericia, quarum altera non diluatur diluvio, altera non solveretur incendio. Marmoream dicit Josephus adhuc esse in terra Syriaca. "Sella genuit Tubalcain", qui ferrariam artem primus invenit, res bellicas prudenter exercuit, sculpturas operum in metallis in libidinem oculorum fabricavit. Quo fabricante Tubal, de quo dictum est, sono metallorum delectatus, ex ponderibus eorum proportiones, et consonantias eorum, quae ex eis nascuntur excogicavit, quam inventionem Graeci Pythagore attribuunt fabulose, sicut ex opere fructicum excogitavit operari, id est sculperere in metallis. Cum enim fructices incendisset in pascuis, venae metallorum fluxerunt in rivulos, et sublatae laminae figuras locorum in quibus jacuerant, referebant. "Soror vero Tubalcain Noema", quae invenit artem variae texturae.

⁶ Allusion to Gen. XXXI?

⁷ Comestor may be referring here to his own account of the invention of the syrinx and the lyre by Mercury, "at the time of Gideon". Cf. his commentary on the Book of Judges VIII, MPL, CXC VIII, col. 1280–81.

⁸ See below, n. 14.

⁹ Cf. also Pseudo-Philo, II, 9: "... and this is that Tubal which showed unto men arts in lead and tin and iron and copper and silver and gold: and then began the inhabitants of the earth to make graven images and to worship them". *The Biblical Antiquities of Philo*, translated by M. P. James (New York, 1971²).

The whole passage, obscure at some places, reads like a patch-work of different legends and traditions. The story of Jubal's musicianship alone consists of three motifs, two of which are indeed anchored in the mythical situation of the Biblical tale of the three brothers: (1) Jubal invented music in order to delight the shepherds, the descendants of his brother Jabel, (2) Jubal discovered the numerical law of musical proportions through the hammers of his brother Tubalcain; it is at this point that the identity of Jubal and Pythagoras is explicitly established. The story of the pillars, however, which comes between these two motifs, obviously introduces material alien to the Bible. It seems to interrupt the continuity of Comestor's tale, which has provided the Biblical story of Lamech's sons with an aetiological background. Comestor himself mentions it only briefly, as if he were alluding to a well-known story, and one has to turn to Josephus Flavius' *Jewish Antiquities* in order to find there the full version of the "story of the two pillars". Owing to the importance of this passage in later reports concerning the invention of music, we shall quote from Josephus at some length¹⁰:

[64] Of these children, Jobel, son of Ada, erected tents and devoted himself to pastoral life; Jubal, born of the same mother, studied music and invented harps and lutes; Jubel, one of the sons of the other wife, surpassing all men in strength, distinguished himself in the art of war, procuring also thereby the means for satisfying the pleasures of the body, and first invented the forging of metal. (Follow pars. 65-67 which describe the vices of the descendants of Cain, and Adam's desire to beget a family). [68] Many other children were born to him (to Adam), and among them Seth; it would take me too long to speak of the rest, and I will only endeavour to narrate the story of the progeny of Seth. He, after being brought up and attaining to years of discretion, cultivated virtue, excelled in it himself, and left descendants who imitated his ways. [69] These, being all of virtuous character, inhabited the same country without dissention and in prosperity, meeting with no untoward incident to the day of their death; they also discovered the science of the heavenly bodies and their orderly array¹¹. [70] Moreover, to prevent their discoveries from being lost to mankind and perishing before they became known—Adam having predicted a destruction of the universe, at one time by a violent fire and at another by a mighty deluge of water—they erected two pillars, one of brick and the other of stone, and inscribed these discoveries on both; [71] so that, if the pillar of brick disappeared in the deluge, that of stone would

¹⁰ *Jewish Antiquities*, book I, paragraph 64 (partly); 68-72. English translation by H. S. J. Thackeray (London, 1961³), p. 32-33. The edition has the Greek text (based on Niese, Berlin, 1887) and its English translation on opposite pages. The numbering of the paragraphs follows Niese.

¹¹ In the Apocrypha this discovery is generally attributed to Enoch. Cf. *The Book of Jubilees* IV, 17; *The Book of Enoch* LXXVIII-LXXX; *The Book of the Secrets of Enoch* XI-XVI. In *Vita Adae* XXV-XXIX, on the other hand, Adam reveals the secrets of the calendar to Seth. Cf. also L. Ginzberg, *The Legends of the Jews*, V (Philadelphia, 1925) p. 149-150.

remain to teach men what was graven thereon and to inform them that they had also erected one of brick¹². It exists to this day in the land of Seiris¹³.

Thus, the discovery of celestial knowledge and its inscription on two pillars was attributed by Josephus not to Jubal but to descendants of Seth.

Jubal versus Seth

In the long tradition of Biblical exegesis, both Jewish and Christian, Jubal and Seth have always represented diametrically opposed worlds: Jubal, although a musician, belonged to the descendants of Cain, usually associated with murder and blood revenge, while Adam's son Seth and his descendants were credited with wisdom, justice and piety. *Pirqê de-Rabbi Eliezer*, a Jewish pseudepigraphic exegesis dating from the eighth century C.E., sums up earlier traditions in saying¹⁴: "From Seth arose and were descended all the generations of the righteous. From Cain arose and were descended all the generations of the wicked ones". According to Josephus Flavius¹⁵ Cain "put an end to that simplicity in which men lived before by the invention of weights and measures", and his descendants "went to depths of depravity. . . They rushed incontinently into battle and plunged into brigandage". Earlier, Philo¹⁶ had interpreted Jobel (= Jabel) as one whose name meant "altering the natures of things or making them other than they are. For he changed the forms of wisdom and endurance and justice in general. . .". Jubal meant "inclining now this way now that. . . It is a most appropriate name for the utterance of a mind that alters the make of things, for its way is to halt between two courses, swaying up and down as if on a pair of scales, or like a boat at sea, struck by huge waves and willing towards either side".

This interpretation seems to have been accepted by Patristic sources. Jerome, in his *Liber de nominibus hebraicis*¹⁷, associates the names Jobel (= Jabel),

¹² In the *Vita Adae* XLIX-L a more embellished version of the prophecy is being delivered by Eve: she summons her sons and daughters before her death and tells them the words of the prophecy as revealed to her by the Angel Michael. Pseudo-Philo III, 9 contains a different record of Adam's prophecy, which is pronounced after the flood and implies that a destruction of the universe through fire is still to come about.—For another version of the discovery of an inscription containing the knowledge of former generations cf. *Jubilees* VIII, 3.

¹³ Κατὰ γῆν τὴν Σεπίδα usual Latin translation: *In terra Syrida*. Other versions are *Syria* or *Assyriorum sua*. Thackeray, *op.cit.* p.33, remarks that "Seirah, mentioned in connexion with 'sculptured stones' in the story of Ehud (Jud. III, 26) has been suggested".

¹⁴ Translated and annotated by G. Friedlander (New York, 1965), p. 52-3.

¹⁵ *Op. cit.*, p. 29-31.

¹⁶ *On the Posterity of Cain and his Exile*. English translation by F. H. Colson and G. H. Whitaker (New York, 1929), p. 379 and 385.

¹⁷ MPL, XXIII, col. 780-83. Usually Lamech's bigamy was made responsible for the wickedness of his descendants.

Jobel (= Jubal) and Thobel (= Tubalcain) with lability and motion, while Seth's stableness is characterized by the attributes of "seed", "grass", "resurrection", etc. Jerome's words are frequently repeated in mediaeval Biblical commentaries and exegeses, and their traces can still be found in a source dating as late as the end of the fifteenth century¹⁸. We can thus see in this distinction a common property of mediaeval thought.

Although Jubal and Seth kept going separate ways in the Middle Ages they were blended, as it seems, in the Latin translation of the *Antiquities*.

Josephus' *Antiquities* were translated into Latin under the influence of Cassiodorus in the sixth century, and gained wide popularity in the monasteries of Europe from the ninth century onwards. Turning to F. Blatt's critical edition of the Latin text¹⁹ we find that mediaeval mss (which, by the way, often had *Iobel* for either *Jabel*, *Jubal* and *Tubalcain*²⁰) deleted the entire sentence concerning Jubal ("Iobel autem consanguineus eius existens musicam coluit et psalterium cytharamque laudavit") and projected it into the passage referring to Seth's successors, between paragraphs 69 and 70²¹. The passage would thus read as follows:

[69] Illi (Seth's descendants) . . . disciplinam vero rerum caelestium et ornatum earum primitus invenerunt. [64] Iobel autem consanguineus eius existens, musicam coluit et psalterium cytharamque laudavit. [70] et ne dilaberentur ab hominis quae ab eis²²(!) inventa videbantur . . . duas facientes (!) columnas . . . in ambabus quae invenerant (!) conscripserunt (!) . . . etc.

Two undated mediaeval mss of the Latin Josephus, which we had the opportunity to examine²³, even go one step further in interpolating Jubal's name between paragraph 64 and 70:

¹⁸ Hartmann Schedel, *Liber Chronicarum*, 1493 (cf. also below). A small, random choice from the abundance of earlier sources includes Melitus, *Clavis*, in J. B. Pitra *Spicilegium Solesmense*, III (Paris, 1856), p. 301; Isidore, *Quaestiones in Genesim*, MPL, LXXXIII, col. 229; *Glossa Ordinaria*, *ibid.*, CXXXIII, col. 101; Pseudo Bede, *ibid.*, XCIII, 289. Bede Venerabilis, in his *Hexameron*, *ibid.*, XCIII, col. 74, comments on the ambivalence of the three brothers, whose deeds contributed to culture (*ad cultum*) and ornament (*ad ornatum*) but also led to inducement (*ad illecebras*).

¹⁹ *The Latin Josephus I*, Introduction and Text (Copenhagen, 1958; *Acta Jutlandica, Humanistisk Serie*, 44. F. Blatt's critical edition collates the main mediaeval mss of the *Antiquities*, Books I–V, and compares them with the Greek source. His edition of book I of the *Antiquities* is based on ms. Firenze, Bibl. Laurenziana, Plut. 66, 2, dating from the 10th–11th century.

²⁰ Cf. *ibid.*, p. 131 and note for line 18.

²¹ *Ibid.*, p. 131–32 (and notes for line 19). The division into paragraphs is that of Niese. Compare also with Josephus' text in English translation, above.

²² Blatt notes only one ms. that has *ab eo*.

²³ Copenhagen, Royal Library, mss GL Kgl. Saml. 156, fol. 4a and GL Kgl. Saml. 157, fol. 2a.

[64] . . . Iobel autem consanguineus eius existens, musicam coluit, etc. . . [70] Iobel autem ne dilaberentur ab hominis quae ab eo (!) inventa videbantur . . . duas facientes (!) columnas . . . in ambabus que invenerant (!) conscripserunt (!)²⁴.

The above version and its deviations, needless to say, bear the signs of a contaminated text: a numerical discrepancy exists between the subject of the phrase (Jubal) and the verbs and pronouns relating to it, which are still in the plural, betraying their original reference to the descendants of Seth.

Does the fusion of Seth and Jubal in the quoted text indicate that a conflation of the two heroes took place in the Middle Ages, or are we justified in seeing in it a mere contamination? In view of the sources quoted before, we are inclined to believe in textual contamination. Of course, not every scribe could have been aware of the antinomy between Seth and Jubal, and while copying Josephus' text other connotations currently related to music—as *quadrivium*, celestial harmony and proportion—might have supplied the background for Jubal's projection into the Sethian context.

We can now understand how the image of Jubal as the rescuer of the arts and of music for posterity found its way into so many later treatises. We must not assume, however, that the above version was the only one used in the Middle Ages, for some of the later writers seem to have alluded to more correct texts. Otto, Bishop of Freising, for instance, quotes Josephus correctly and reports that he attributed the engraving of the arts on pillars to the descendants of Seth²⁵. Likewise, we shall see below that Alfonso the Wise must have had access to an uncorrupted text²⁶.

Jubal and the Pillars

One of the earliest accounts of the story of Jubal and the pillars, which closely follows the contaminated version of the Latin Josephus, is that of Rhabanus Maurus (776–856) in his *Commentario in Genesim*, book II. Our translation of this passage endeavours to parallel as far as possible Thackeray's English translation of Josephus' Greek text (see above). References to Niese's paragraph numbers are given in square brackets, and deviations from the Latin text of Josephus as well as additions to it are italicised²⁷:

²⁴ Ms. 157 has *Jobal* for the three brothers; the words *ab eo* are unclear and it is impossible to determine whether the text reads *eo* or *eis*, but the following verbs are all in the plural, as is the case also in ms. 156.

²⁵ *The Two Cities: A Chronicle of Universal History in the Year 1146 A.D.* English translation by C. C. Mierow (New York, 1966²), p. 124

²⁶ Cf. below, p. 94.

²⁷ MPL, CVII, col. 508: Et nomen fratris ejus Jubal; ipse fuit pater canentium cithara et organo". De hoc Josephus historiographus Judaeorum ita refert: [64] Jubal autem, inquit, musicam

"And his brother's name was Jubal", etc. About that the historiographer Josephus tells the following. [64] Jubal, he says, cultivated music and praised (on the) psalter and cithara. [70] And in order to prevent the things regarded as his discoveries from being lost to mankind or to perish before being known—Adam having predicted the end of everything, at one time by the power of fire and at another by the force and multitude of water—he erected two pillars, one of brick and the other of stone, and inscribed on both the things he had discovered; [71] so that, if the pillar of brick disappeared in the deluge, that of stone would remain to proclaim to men the knowledge of the inscription and to inform them that he had also erected one of brick, so that this one would be saved from the ardour of fire even if the one made of stones would be dissolved. The pillar of stone still exists until today in the land of Syria.

Rhabanus Maurus, of course, was not a mere scribe: he edited and revised the passage he had excerpted from Josephus, and gave us a neat picture of Jubal as sole sponsor of music and rescuer of the arts. He even rounded off the story where Josephus had curtailed it. Later generations who were to use his version of Josephus' story could have no doubts left as to Jubal's role. We can thus see in Rhabanus an important source which influenced the image of Jubal in the Middle Ages.

Turning again to Peter Comestor, it becomes evident that the Josephus-Rhabanus version could not have been his immediate *Vorlage*. Not only is Comestor's picture of Jubal much more elaborate, his story of "Jubal and the pillars" also diverges both in vocabulary and in structure from the former. Were there any mediating versions between Comestor's and those of his predecessors, or did he prepare his own paraphrase of the text or quote it from his memory? We are not able to answer that question at this stage.

The subject of the continuity between the ante- and postdiluvial worlds, together with the authority of Josephus as a historiographer, seem to have appealed in the first place to historians and chronographers. The versions of both Rhabanus Maurus and Peter Comestor thus found their way into a succession of *commentarii in Genesim*, general histories of the world and comprehensive encyclopedias. It is not difficult, if one is interested in this tradition, to trace the later texts back to their sources, and to establish their dependence on either Rhabanus or Comestor. Rhabanus was quoted almost literally by his immediate followers in the ninth and tenth centuries, such as by the

coluit, et psalterium citharamque laudavit. [70] Et ne dilaberentur ab hominibus, quae ab eo inventa videbantur, aut antequam venirent ad cognitionem deperirent, cum praedixisset Adam exterminationem rerum omnium, unam ignis virtute, alteram vero aquarum vi ac multitudine fore venturam. duas *faciens* columnas, aliam quidem ex lateribus, aliam vero ex lapidibus, in ambabus quae *invenerat* conscripserat, [71] ut et si constructa lateribus exterminaretur ab imbris, lapidea permanens praeberet hominibus scripta cognoscere, simul et quia lateralem aliam *posuisset*, ut haec ab ignium ardore servaretur, etiam si lapidea solveretur; qua tamen lapidea permanet hactenus in terra Syria.

author of the *Glossa ordinaria*²⁸ and Remigius of Auxerre²⁹. Later writers preferred Comestor's version, as did, for instance, Vincent of Beauvais in his music treatise (i.e. book 18 of his *Speculum doctrinale*), dating from about 1260³⁰, or Jacques de Liège in his *Speculum musicae*, book I (ca 1330)³¹. Both quoted Comestor's story literally. Others paraphrased him freely, as did his younger contemporary Peter Riga, Chancellor at Reims, in his *Aurora*, a rhymed versification of the historical books of the Bible³², or the Jewish writer Yerahmi'el, living at about the same time, whose chronicles have been preserved in the later Hebrew compilation of Eleazar ben Asher Halevi (ca 1325)³³.

The story of the pillars soon underwent some modifications. The Spaniard Aegidius of Zamora (13th century), after repeating Comestor's story, added that Zoroaster, "the inventor of the magic arts, wrote the seven liberal arts neatly down of fourteen pillars. Seven of them were made of stone and seven of brick"³⁴. For the sake of rhyme, perhaps, an anonymous English writer (ca 1250), telling the stories of Genesis and Exodus in verse, turned the pillar of stone into one of brass³⁵. In view of the complex relations of texts, motifs and sources one is not astonished to find a later writer who tries to restore order and logic to the story of the pillars. Hartmann Schedel observes in 1493³⁶ that all the arts found their point of origin with the sons of Lamech, who were more subtle than others. He then goes on to tell how Tubalcain wrote down

²⁸ MPL, CXIII, col. 101.

²⁹ *Expositio Remigii super Bresüh*, *ibid.*, CXXXI, col. 51.

³⁰ Edited by G. Göller, *Vinzenz von Beauvais . . . und sein Musiktraktat im Speculum doctrinale* (Regensburg, 1959), p. 105.

³¹ *Jacobi Leodiensis Speculum musicae*, I, ed. R. Bragard (Rome, 1955), p. 25–26.

³² The relevant passage from the *Aurora* is quoted by K. Young, "Chaucer and Peter Riga", in *Speculum*, XII (1937), p. 37.

³³ English edition by M. Gaster, *The Chronicles of Jerahmeel* (London, 1899), p. 51 and 56. For the Hebrew version of the 14th century ms. cf. N. Allony, in *Yuval*, 2 (1971): 31 (Hebrew part). Cf. also L. Cohn, "Pseudo-Philo und Jerahmeel", in *Festschrift zum siebzigsten Geburtstag Jakob Guttmanns* (Leipzig, 1915), p. 173–85.

³⁴ GS, II, 371–2.

³⁵ *The Story of Genesis and Exodus: an Early English Song . . .* ed. R. Morris (London, 1865), lines 455–65. We quote from Morris' transcription into modern English, p. viii, and add in parentheses the original Middle English text where the rhyme suffered from modernizing: "Adah bare him a son Jubal,/ He was a [shep]herd wise and able;/ Of mark, breed, age and colour,/ separating and assembling taught he;/ Jubal his brother poetry and music [song and glew],/ Craft of music, well he knew;/ On two tables of tile and brass,/ Wrote he that wisdom, wise he was,/ That it should not be effaced [undon]/ if fire or water came thereon."

³⁶ *Liber Chronicarum* (Nürnberg, 1493), p. 10: Nota qui omnes artes vel scientes seculares liberales sive mechanice sive phisice humane curiositati debuentes a filiis Lamech legunt invente et sic filii adulterimi primum subtiliores aliis fuerunt. Et per timebant futurum praedictum diluvii et ignis Tubalcain easdem artes in duabis columnis sculpsit.

the arts on two pillars. It seems, that the tradition of attributing magic power and celestial knowledge to Seth, and his confusion with Jubal, had become so vague that the writer, otherwise indebted to Comestor's version, logically concludes that engraving on pillars is not the musician's but the blacksmith's job³⁷.

Jubal and the Hammers

While the attention of historiographers was drawn to the story of the pillars, as an important motif for any scholar concerned with continuation and transmission of tradition, it seems that poets were more interested in the epic or picturesque aspect of the story: the three brothers, their different professions and their mutual influence on each other are often alluded to in poetical, non-historical texts. Some of the authors writing in this vein concentrated on the relation between Jubal and Tubalcain, following in their discussion Peter Comestor's interpretation and his identification of Jubal with Pythagoras. Chaucer, for instance, was well acquainted with Peter Riga's *Aurora*, which contained all the motifs included in Comestor's *Historia*. Nevertheless, when he happened to mention Jubal in his *Book of the Duchess*, he confined himself to the subject of the hammers alone³⁸. Likewise, we find that the story of the pillars is deleted from a Middle German source, otherwise dependent on Comestor, the *Historien der Alden E*, an anonymous rhymed poem dating from the fourteenth century. This tells the story of the three brothers as found in the *Historia scholastica*, but does not concern itself with pillars and the flood³⁹:

And Jubal, Jabel's brother, was the first to invent all kinds of music on organs and harps, both sound and song. The other wife of Lamech, Sella, bare Tubalcain. The same Sella also bare Noema, a daughter fair. The craft of a smith was first invented by Tubalcain. He invented the way of working with ore and with iron, for he was a good smith. The aforementioned Tubal found melody and song out of the strokes of hammers and of their lovely ringing.

³⁷ At the conclusion of this passage, Schedel's text reflects the traditional view on the voluptuous descendants of Lamech. Tubalcain, he claims, made his sculptures "for the desire of the eyes" just as his brother Jubal devised consonances "for the delight of the ears": Iste Tubalcain filius Lamech . . . artes ferrares primum invenit: res bellicas exercuit, sculpturas in metallis in libidinem oculorum fabricavit, sumens ex exemplum a natura ex opere fructicum sicut frater suus Tubal ad voluptatem aurium consonantias excogitavit.

³⁸ G. Chaucer, *The Book of the Duchess*, lines 1155-70.

³⁹ *Historien der Alden E*, edited by W. Gerhard (Leipzig, 1927), p. 8-9: Abir Tubal, Jabels bruder, / Van erst vand sunder luder / Orgelspil und harfenclang, / Beide gedone und gesang. / Daz andir wip Lamechs, vernim, / Sella gebar Tubalkaim, / Di selbe Sella ouch gebar / Noema, eine tochter clar. / Daz hantwerk smidens van erst vant / Tubalkaim also genant. / Er vant daz alda mit, / In erz, in isen ein gut smit; / Der vorgeante Tubal bloz / Uz der hemer slegen groz / Und uz der hemer clingen schone / Vand wise und gedone.

In Guillaume Cretin's *Déploration sur le trépas de Jean Okeghem*⁴⁰ Jubal (" . . . Tubal, le bon père ancien, / Qu'on dict et tient premier musicien, / Q sur marteaux trouva sons et accordz . . .") pays his tribute to the memory of the deceased Ockeghem in an atmosphere decorous with melancholy.

Not always, of course, has the subject of Jubal and the hammers been treated in an idyllic fashion. The identification of Jubal with Pythagoras was bound to be welcomed by some of the writers and rejected by others. Thus the mss containing Vincent of Beauvais' treatise on music omit Isidore's sentence "Moyses dicit fuisse Tubal, qui fuit de stirpe Cain . . .", while quoting from his *Etymologia*, although his treatise later contains a full and exact quotation from Comestor's text, in which the invention of music is thrust back again to Jubal⁴¹. In the fourteenth century the English monk Ranulf Higden who being a historiographer, also shows interest in the story of the pillars, deliberately rejects Jubal's primacy and refers the reader to his chapter dealing with Pythagoras⁴²:

But discrete men say, thaughe Tubal exercisede firste musike to alleviate the tediousness of pastoral life, nevertheless he was not the first finder of the reason of consonance by weights, but rather Pythagoras.

By "discrete men" Higden may be alluding to his contemporary Walter Odington, the only music theorist who explains Jubal's function merely that of bringing solace to pastoral labour through his invention of music⁴³.

Rabbinical authorities, had they had access to the literature partly quoted above, must of course have welcomed the idea of Jubal's primacy over Pythagoras. In a homily written by Juda b. Joseph Moscato, Rabbi at Mantua (printed Venice, 1589), this outstanding representative of the Italian-Jewish Renaissance wanted to convince his kinsmen of the importance of music and proudly brought forth his argument⁴⁴:

But those who attribute the invention [of music] to him [Pythagoras] are erroneous for we know by Divine testimony that Jubal was the father of them that play upon the harp and the organ. It is possible, though, that the invention of this art was made in the way just mentioned, for his brother Tubalcain was a hammerer and artificer in every work of brass and iron.

⁴⁰ Edited by E. Thoinan (Paris, 1884), p. 28-9.

⁴¹ Cf. G. Göller, *op. cit.*, p. 59 and his edition of the text, p. 86. As the writer remarks, the incunabula do not omit this passage.

⁴² *Polychronicon*, II, ed. C. Babington (London, 1869), p. 229. Quoted from the anonymous 15th century translation, Ms. Harl. 2261.

⁴³ *De speculatione musicae*, CS, I, p. 192-93.

⁴⁴ Text, German translation and commentary by H. Shmueli, *Higgajon Bechinor (Betrahtungen zum Leierspiel) des Jehudah ben Joseph Arjeht Moscato, Rabbi zu Mantua* (Tel-Aviv, 195

Though the opening words of this passage are reminiscent of Comestor's "quam inventionem Graeci Pythagore attribunt fabulose", it is quite possible that Moscato drew his information not directly from the *Historia Scholastica* but from Gregor Reisch's *Margarita philosophica* (1503), to which he refers twice in his treatise.

Alfonso el Sabio

We shall conclude our quotation from mediaeval sources with Alfonso el Sabio's references to Jubal in his *General Estoria*⁴⁵. It is, indeed, one of the most elaborate renditions of Comestor's story, profuse with fantasy and imagination, but still showing its dependence on Peter Comestor (or on an earlier source, common to both?). Being a poet and historian in one, Alfonso deals broadly with the epic parts of the story, using a large amount of *licentia poetica*, while he emerges as a careful historiographer in those instances which have always been of interest to the historian. In the following, we shall only quote the passages referring directly to Jubal:

*XVI. On the Facts of Music*⁴⁶

Jubal, Ada's other son, born of the same father and mother as the aforementioned Jabel, by his nature cared above any other matter for sounds, their concordances and their sweetness. Therefore Moses in Genesis IV calls him "father of singers", for he was the first who found the mastery of music, that is the art of singing and of making sound. He was the first to have invented citterns⁴⁷, vihuelas, harps and also many other instruments. He was the first who furnished them with threads of animals (hair), and when he continued to investigate this art he found the strings of cattle (gut), which may be stretched more and better than animal's hair, for they do not tear as quickly as those and make stronger tones and better sounds. Likewise, those who came after him continued working and invented the strings made of silk, the flower of voices and sounds in instruments played with gut⁴⁸. In the same way, the psaltery and organs and many other instruments were invented later on.

And Jabel, his brother, upon returning to the village from pasture and hearing his brother Jubal playing on those instruments, delighted in it very much. He

p. 28 (German) and 6 (Hebrew):

אכן שקר נחלו המיתרים אליו המצאה זו שהרי על פי עדות ה' נאמנה יובל היה אבי כל חופש כנור ועוגב, ואולם אפשר שהמצאת המוסיקה היתה על הדרך אשר הזכירו בהיות תובל קין אחיו לוטש כל חורש נחשת וברזל.

⁴⁵ Edited by A. G. Solalinde (Madrid, 1930), p. 13-15. I wish to thank Dr. Bathja Bayer who drew my attention to the text and to Mrs. Shoshana Weich who helped me with the translation.

⁴⁶ The preceding chapter, no. XV, begins the story of Lamech's sons with a description of Jabel, which is an embellished version of Comestor's story.

⁴⁷ *Citolas*.

⁴⁸ On strings made of hair, of gut and of silk see C. Sachs, *Handbuch der Musikinstrumentenkunde* (Berlin, 1920), p. 123-4.

thought that some of these joys would help to take away the shepherds' sadness, while going with their cattle to the mountains, and would bring them solace and joy and thus help them to bear their suffering and hardship. He asked his brother to make some instruments like these for his shepherds and gave him calves and cows from his herds. And Jubal promised and kept his promise. He made for them (double) shawms, bagpipes and bandurrias⁴⁹. And thus, the shepherds which followed them invented pipes and other instruments, which they made from the things which their cattle had on their heads. They are heard and sound very well in the mountains, and it is being done likewise even today.

XVII. On Jubal's Pillars of Music

We find another refinement and subtlety with Jubal, as told by master Peter in his *Historia Scholastica* at his place⁵⁰. Jubal had learned from his ancestors that Adam had spoken to his many sons and grandsons and to the large assembly which had gathered around him. It was told that he had prophesied to all of them that the whole world would end twice and that double destruction would come about. One end would be by water, which would cover the whole earth and kill everything alive, save a few. The other end would be by fire, which would destroy not only living creatures but also inanimate objects, and would leave nothing alive. And Jubal (wanted) to prevent the knowledge of the art of music, which he had invented, from perishing at the end, and to deliver it to those who were to come afterwards. And as he did not know which end would be the first to come and wanted to save music from perishing in one or the other end, he erected two pillars, one of brick and one of stone. And he wrote on each the complete knowledge of the art of music which he had invented and which he knew: on the pillar of brick, for in case the end would come by fire and burn the stone, and the knowledge contained on it be lost, the pillar made of brick would not be burned, for bricks are made of earth and the knowledge contained in them would remain for the followers to find it there. And if the end would come by water which would wash away and destroy, in that case, the pillar of brick, made of earth, the pillar of stone would remain. In any of the two ways, knowledge would not perish. And the pillar made of brick was lost in Noah's deluge, and that of stone remained.

Josephus has said in chapter II of his first book, that the pillar of stone was discovered in his time in the land of Syria. Having said that Master Peter claimed it and proved it by Josephus, we looked it up in Josephus and found that it was right. But this engraving and that of his other celestial knowledge and of his constructions was made by the generations following Seth, who were good and learned it from their fathers. But we also found that Rhabanus said in a gloss to this place, that Jubal made the engraving, and Rhabanus, too, proves it by Josephus. And may everybody who hear it understand it as he may, historical truth proves that the pillars and the inscription of the sciences have indeed been made. And it is possible that Cain's followers made their (inscription) of the arts which are called mechanical arts, while Seth's followers made theirs of the liberal arts and everything pertaining to them⁵¹.

⁴⁹ "Albogues, albogones e mandurrias". For the etymology cf. C. Sachs, *Reallexikon der Musikinstrumentenkunde* (Berlin, 1913), p. 6 and 29-30.

⁵⁰ The following version of the story, though explicitly referring to Comestor, actually seems to elaborate on Rhabanus Maurus' version.

⁵¹ Hugh of St. Victor, *Didascalion*: "Philosophy is divided into the theoretical, the practical,

XIX. On Jubal's Learning of Music⁵²

On the acquisition of the knowledge and the art of music by Jubal, Tubalcain's brother, we also say that he arrived at it in the following manner. When Tubalcain worked with these metals, his brother Jubal devised out of the sounds produced and of the hammers the beginning of sounds which, as we said, he put into the instruments on which he produced the concordances of music. In this way Jubal arrived at the beginning of the introductions to music.

Later on he learned it and used it and invented much to further develop this art. For, except for the sounds of hammers which he learned from the smiths, the sounds were identical and sounded equal. He later invented by himself the temperature of strings, high ones, low ones and medium. And he made them all respond in sound, i.e. in their voices, and tuned them to produce sweetness which pleases and delights everybody very much.

In view of our earlier observations on mediaeval deviations from Josephus' original text, Alfonso's passage on Seth and Jubal is very significant. While he lets his imagination rove freely at many places in the story, he proves the conscientiousness of the historian when touching upon the problems of history and tradition. Alfonso seems to have possessed a correct copy of the Latin Josephus and thus he is aware of the discrepancy between the original and the references made to it by later writers. He tries to escape embarrassment by introducing the Victorine division of philosophy into the discussion. At the same time he also shows his commitment to the tradition which used to distinguish between the line of Cain and that of Seth.

Old and New in Music

Among the music theorists, some seize gladly on the identification of Jubal-Pythagoras⁵³, while others only record his name as one member of a long line of music's inventors⁵⁴. At this point the discussion often turns to the problem

the mechanical and the logical . . . The mechanical arts include spinning, arms-making, navigation, agriculture, hunting, medicine and the theatrical art". English translation by M. M. McLaughlin in *The Medieval Reader* (New York, 1949), p. 574. On the significance of Hugh's division and its earlier sources cf. R. R. Bolgar, *The Classical Heritage and its Beneficiaries* (New York, 1964²), p. 230 ff.

⁵² The preceding chapter, no. XVIII, omitted here, gives a fuller account of the story of Tubalcain's technique and art of engraving, to which Peter Comestor only refers somewhat vaguely.

⁵³ A few of them deal with the problem at length, as do, for example, Johannes Aegidius Zamorensis, *Ars musica*, GS, II, p. 371 and 373; Adam of Fulda, *Musica IV*, GS, III, p. 367; Joannes Gallicus, *Ritus canendi*, CS, IV, p. 299-301; Johannes Gaffurius, *Theorica Musicae* (Milano, 1480; reprint: Bologna, 1969), chapter 1; Pietro Cerone, *El Melopeo y maestro* (Naples, 1613; reprint: Bologna, 1969), Book II, chapte: 19.

⁵⁴ Among writers after Comestor's *Historia scholastica* the following can be mentioned: Johannes Aflligemensis (Cotto), *De musica cum tonario*, edited by J. Smits van Waesberghe (Rome, 1950), p. 55-6; Johannes de Muris, *Summa musicae*, GS, III, p. 193-94; Adam of Fulda, *Musica I*,

of the old and the new in music and few observations are made on our subject. In general, the tenor of these remarks is of an evolutionistic nature and reflects the special way in which the Middle Ages approached the problem of progress and reform.

For Guido the music of the ancients still existed in a "natural state"⁵⁵: instruments were unreliable and singing unclear, musical intervals and consonances could not be defined and performed with exactitude, etc. For him, Pythagoras was the first promoter of wisdom and order in music. Guido's depiction of a primitive, pre-civilisatory stage in music's history corresponds well with the first age of mankind which, according to Augustine's division, extended from the time of Adam to the Flood. This division may explain the fact that several theorists of music searched for the traces of music's inventor in the generations before the flood. Even so, most of them saw in Jubal only the first inventor, succeeded by younger ones who brought with them new observations and innovations. As the term "first inventor" itself denotes, progress is modelled on the primary achievements of the ancients and should better be conceived as reform⁵⁶. Aegidius of Zamora, after a long excursus on music's origin and inventors, abruptly breaks up his discussion and declares⁵⁷: "But yet we may agree with the Hebrews, that the first inventor was Tubal: but others who followed him . . . had new considerations and new experiences, and added to the former ones, as is often found in other sciences. As Priscian said: 'In the beginning were the older ones; the younger they are, the more perspicacious are they.'⁵⁸ We find it also with the ancient philosophers, later with Socrates, later with Plato and lastly with Aristotle, and in later times with Alexander the Great."

We have already found a similar idea expressed in Alfonso el Sabio's *General Estoria* (chapter 16): Jubal was the first inventor of musical instruments, and those who followed him could draw on his innovations and perfect

GS, III, p. 340-41; Pietro Aron, *Toscanello de la musica* (Venice, 1523; reprint: Bologna, 1969), chapter 2; Gioseffe Zarlino, *Le Istitutioni Harmoniche* (Venice, 1573; reprint: Ridgewood, New Jersey, 1966), p. 6; Hermann Finck, *Practica musica* (Wittenberg, 1556; reprint: Bologna, 1969).

⁵⁵ *Micrologus*, chapter 20, GS, I, p. 23. In the 14th century the same words are repeated by Simon of Tunstede who adds Boethius and Franco to the list of inventors, but also mentions that according to the Bible Jubal was the first inventor of music; cf. CS, IV, p. 206.

⁵⁶ The following remarks are mainly based on J. Spörl, "Das Alte und das Neue im Mittelalter", in *Historisches Jahrbuch*, 50 (1930): 297-341 and 498-524, and in part also on the following: E. M. Sanford, "The Study of Ancient History in the Middle Ages", in *Journal of the History of Ideas*, 5 (1944): 21-43; E. Panofsky, *Renaissance and Renascences in Western Art* (London, 1965²), chapters 1 and 2; P. Burke, *The Renaissance Sense of the Past* (London, 1969), chapters 1 and 6.

⁵⁷ GS, II, p. 373.

⁵⁸ "Quanto iuniores, tanto perspicaciores". The phrase is often quoted by other writers as well.

them through their own experiments. Here the ideas of reform and of evolution are blended, while the authority of the ancient inventor has not been diminished.

The mediaeval evolutionary view of the historical process based, no doubt, on Aristotelian teleological concepts, is even more pronounced in the *Summa musicae* (14th century)⁵⁹. Here Aristotle is quoted as having said that the beginnings of all the arts were unskilled and few in number, but every succeeding inventor (*auctor*) applied to them something new. It is thus possible that Jubal was the first producer of *iubilus* and *iubilatio*, as said by Moses, and that his followers added to it something new. "It happens even today," he concludes. "and it could also be said about the new way of singing (*de novo modo canendi*), that something is added by the moderns which has not been discovered by the ancients."

Even Jacques de Liège, the protagonist of the *ars antiqua*, gives a similar definition of the concept of the new in music, though he seems to be less enthusiastic about the subject as such⁶⁰. After having quoted almost literally Comestor's tale of Jubal, he comes to speak of Pythagoras, to whom he denies almost any right of being called an innovator. Pythagoras may have discovered the consonances from the strokes of hammers, but he was not their first inventor, for they had been used by men long before. He was not even the first discoverer of instruments, for they had been invented by Mercury at the time of Gideon⁶¹. "But perhaps Pythagoras found something new in instruments, which had not existed before." Despite Jacques' deep involvement in the quarrel of the ancients and the moderns and his subsequent attack on the *moderni cantores*, his observations on the nature of the new do not differ basically from commonplace theories expressed by his contemporaries.

Epilogue

We have pursued the changing image of Jubal through the Middle Ages. The straightforward explication of Genesis IV, 21 by Isidore attributed the invention of music to him, side by side with other, pagan figures, while a different exegetic tradition saw in him only one member of a complex mythological situation, echoed in Jerome's interpretation of names. Still another tradition, basing itself on the contaminated Latin Josephus, saw him in the light of quadriviral concepts and as a link between the generations before and after the flood. Finally he was merged with his half-brother Tubalcain, to become a Biblical Pythagoras. The later Middle Ages endowed him with the halo of an

ancient *auctor* who, in laying down the foundations of the art of music, enabled future generations to add to it new achievements, never forgetting their indebtedness to him.

In the Renaissance Jubal is still on the scene, but his image, enriched in the course of centuries by myths, legends and various traditions, begins to pale. A representative of the Old World, he now appears merely as a distant, remote sage, the first stage in a process of gradual evolution and growth, culminating from the Renaissance point of view, not in the revered past but in the present.

Adam of Fulda, writing in 1490, still couples mediaeval concepts with the new outlook of the Renaissance when he sums up the whole discussion of Jubal, as he sees it⁶²: ". . . Be it as it be, we may believe that the inventors of this art were many, according to the variety of times and places . . . Jubal, Lamech's son, before the flood; Moses among the Hebrews, Pythagoras among the Greeks, to whom the Muse gave the art of perfect speech ("musa ore rotundo loqui dedit"); among the Latins we would say that Boethius was the first; for prior to his time the style of the Greeks was sung in the church of God; see Jerome, epistle to Pope Damasus. Afterwards many followed suit: Gregory, Isidore, Guido, Odo, Berno, Iohannes de Muris, and about my time the learned Guillaume Dufay and Antoine Busnois, whom we would like to follow in words and deeds. But if we ask who was the first of them all, I think it was Jubal, for he preceded them all in time. Indeed, the Holy Scriptures name him and no other the first inventor."

⁵⁹ GS, III, pp. 193-94.

⁶⁰ *Speculum musicae*, I, (Rome, 1955), p. 26.

⁶¹ Cf. above, n. 7.

⁶² *Musica*, I, GS, III, p. 341. Cerone still repeats his words literally as late as in 1613. Cf. *E. Melopeo II*, chapter 16.