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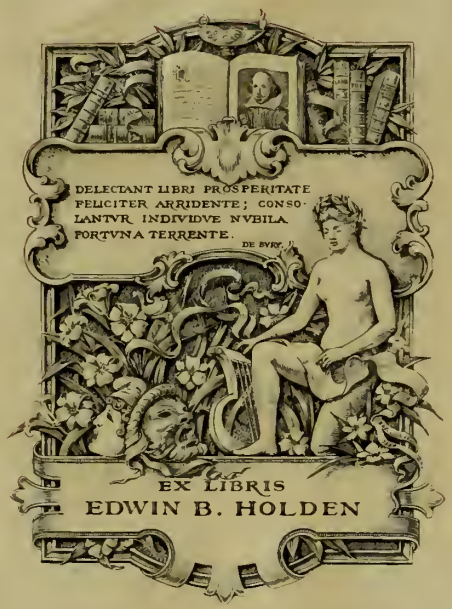

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PREFACE.

ALTHO' this Compoſition hath coſt me much Time and Pains ; yet I little thought of expoſing it to public View : But being repeatedly importuned by my Friends, I was at laſt prevailed upon to commit it to the Preſs. And ſuch as it is I now offer it to the Public, from whom, ſhould it meet with a favourable Reception, it would compenſate for all the Trouble I have been at, and the Time I have ſpent in the Proſecution of it. Perhaps there may appear in the Eyes of the Accurate much Incorrectneſs that I was not able to diſcern ; therefore would beg the Critic to be tender, and rectify thoſe Errors which through Inexperience may happen to have eſcaped the Notice of a Youth, in the Courſe of ſo large a Volume.

I would here take Occaſion to return my Thanks to thoſe Gentlemen who have put ſo much Confidence in this Performance, as to promote and encourage it by Subſcription, before they could have an Opportunity of examining it. And I would acknowledge myſelf in a particular Manner obligated to that Gentleman who has honored me and this Book with his learned Philoſophical Eſſay on Sound ; *yet at the ſame Time I can't but be ſorry that I am not allowed to give the Public the Satisfaction of knowing his Name : For ſomewhat contrary to Nature, Modeſty in this Gentleman, has ſo far gained the Aſcendency over Ambition, that the World muſt remain deprived of the Knowledge of him, 'till his Name ſhall ſhine on the Page of ſome future Work.*

It would be needleſs in me to attempt to ſet forth the Uſefulneſs and Importance of Pſalm-ſinging, which is ſo univerſally known and acknowledged, and on which depends no inconſiderable Part of the Divine Worſhip of our Churches. But thus much would I ſay, That he who finds himſelf gifted with a tunable Voice, and yet neglects to cultivate it, not only hides in the Earth a Talent of the higheſt Value, but robs himſelf of that peculiar Pleaſure, of which they only are conſcious who exerciſe that Faculty.

Authors in general, upon Subjects of this Nature, abound moſtly in Tunes of common Metre ; but in this Reſpect, I have deviated from them, endeavouring to have a Sufficiency in each Meaſure. In the Compoſition I have been as plain and ſimple as poſſible ; and yet have tried to the utmoſt of my Power to preſerve the modern Air and Manner of Singing. And ſhould it upon Proof be found equal to the Attempt, I hope it will be as well an Inducement to the unſkill'd in the Art to proſecute the Study of it, as an Entertainment to the more experienced in it. BOSTON, October 7, 1770.

ADVERTISEMENT.

IF this Work ſhould meet with Encouragement, it may be an Inducement to the Author to publiſh another Volume, which he has in Poſſeſſion, conſiſting chiefly of Anthems, Fuges and Chorus's, of his own Compoſition.

Billings
May 13, 1910
C

An ESSAY on the Nature and Properties of SOUND.

MUSIC being nothing but particular Sounds, variouſly modified, and adapted to pleaſe the Ear, perhaps thoſe, whoſe Ears are ſo conſtituted, as to delight in it, may not be unentertained with ſome Obſervations on the Nature of Sounds in general, more eſpecially ſuch, as are called Muſical Tones.—The Doctrine of Sounds, is, in many Reſpects, the moſt intricate and perplexed, of any one Branch of natural Philoſophy ; and has puzzled the greateſt Genius's in the Explication of the *Phænomena* relative thereto. I ſhall not here attempt to enter into the more abſtruſe Parts of it, ſuch, as may require Mathematical Calculations in the Inveſtigation of, but conſider thoſe Things only, which are of principal Concernment, and at the ſame Time, not very difficult to comprehend ; for, this Eſſay is deſigned only to give a general Notion of the Nature and Properties of Sound to thoſe, who have not had the Advantages of a Philoſophical Education.—Sound, conſidered abſtractedly as a mere Perception of the Mind, admits not of Definition or Explanation ; what is here principally to be conſidered, are thoſe Circumſtances, which muſt neceſſarily take Place in Nature, in order to produce in us the Idea of Sound.—It appears very evident from Experiments, that Sound, has a neceſſary dependence on the Air ; for, in Places, from whence the Air is extracted, as in an exhauſted Receiver, the moſt ſonorous Bodies emit no Sound at all. The Air, therefore, may be conſidered, as the Subject, or Medium of Sound, without which, we never ſhou'd have the Perception of it. And, as the Air, is a Fluid whoſe Particles are ſpecifically extremely light, and indued with the Property of Elaſticity in a great Degree, it follows, that they make but a ſmall Reſiſtance, and are eaſily put into Motion by any impreſs'd Force ; which Motion of the Air, will ever correſpond with, and partake of, the ſame Kind, of the Motion of the moving Power. When, therefore, the Parts of an elaſtic Body by Percuſſion, are put into a tremulous, vibrating Motion (which Kind of Motion is natural to all elaſtic Bodies in recovering their natural State, after an impreſſing Force ceaſes to act) thoſe tremulous Motions, communicate correſpondent Vibrations, to the contiguous Particles of Air, they to others, and ſo on, till having arrived at a certain Diſtance from the tremulous Body, the Vibrations ceaſe ; being gradually deſtroyed, by a continual ſucceſſive Propagation of Motion, to freſh Particles of Air, throughout their Progreſs.—A ſteady uniform Current of Air ſuch as produces Wind, however ſtrong, will not occaſion Sound ; but it is neceſſary there ſhould be a tremulous, or reciprocal vibratory Motion, and that to a certain Degree of Quickneſs, in order to produce an audible Tone. This Matter will be beſt conceived of, by inſtancing in the Vibrations of a Muſical Chord. When an elaſtic Chord or String ſufficiently ſtretched, is pulled out of its rectilinear Situation by a Force applied ; and then left to recover its natural State by its Power of Elaſticity, it will produce a Number of Vibrations ; that is it will paſs and repaſs a Number of Times acroſs the Line which it occupies in its quieſcent State. Theſe Vibrations, though they become ſhorter and ſhorter till the Chord is at perfect Reſt, are all made in equal Times ; that is, the firſt or longeſt Vibration, takes up no more Time than the laſt or ſhorteſt. Now, it muſt appear very evident, that the contiguous Particles of Air, being compelled to move forward by the firſt Impulſe of the Chord in its firſt Vibration, propel thoſe next to them, and theſe, others again, and ſo on to a conſiderable Diſtance according to the Intenſity of the percuſſive Force. But when the Chord makes the ſecond Part of the Vibration, by returning back again, the Particles of Air alſo, by their repulſive Power, repel each other toward their proper Places, and thus again expand themſelves ; and

thus

thus there will be a continual Condenſation and Expanſion of the Air, at every compleat Vibration of the Chord. Whence it will appear evident, that there muſt be the ſame Number of Tremors or Vibrations of the Air, that the ſonorous Body makes. Theſe reciprocal Tremors of the Air, made by the Vibrations of an elaſtic Body ſucceed each other in an undulatory or wave-like Manner, analogus to Waves generated in the Surface of ſtagnant Water by an impreſſed Force, and ſpread themſelves around in every Direction, in concentrec Spheres, whoſe Centre is the ſonorous Body. And it frequently happens, that in their Progreſs from the ſounding Body which is their Centre, that they meet with various reſiſting Objects, upon which they are impinged, which will reflect them back, and ſo cauſe new Vibrations of the ſame Kind the contrary Way. If the reſiſting Odject is a little more than 500 Feet diſtant, the reflected Sound will be diſtinctly heard, becauſe it will take up near a ſecond of Time in its Acceſs and Receſs. But if the Diſtance be much leſs, the reflected Sound will ſo nearly coincide with the original as not to be diſtinguiſhed from it. This may be obſerved in Churches where, though the Voice of the Speaker ſuffers a vaſt Number of Reflections from the Roof, Floor, and Walls, yet they ſo mix themſelves together with the original Voice, as not to be diſtinguiſhed from it, but only render it ſtronger. Theſe reflected Sounds conſtitute what is called an *Eccho*; and the greater the Diſtance of the reflecting Object, the longer in Proportion to that Diſtance will the Time be, before the Repetition of the Sound will be heard: Aud when the Sound in its Progreſs meets with Objects at different Diſtances ſufficient to produce an *Eccho*, the ſame Sound will be repeated ſeveral Times ſucceſſively, according to the different Diſtances of theſe Objects from the ſounding Body; which makes what is called a repeated *Eccho*. Sound is ſubject to the ſame Laws in its Reflection, that Light and Heat are, the Angle of Reflection in both Caſes, being the ſame as the Angle of Incidence; and therefore it is eaſy to determine where the *Eccho* will be moſt diſtinctly heard when the Figure of the reflecting Surface, and the Situation of the ſounding Body are known.—If Sound is impreſſed upon a Column of Air, contained in a long narrow, but diverging Tube ſuch as the common Speaking Trumpet, it will continually reflected and reverberated from the curved Sides, into the Axis, whereby it becomes more intenſe at its Exit, and will conſequently be much louder, and be heard at a much greater Diſtance than otherwiſe it wou'd be. So likewiſe if the narrow End be applied to the Ear, and the broad End directed towards the Body which emits the Sound, the ſonorous Rays (as they may be called) will be collected. converged, and ſtrike the Drum of the Ear with greater Force, in Proportion, as the Diameter of the broad End, is greater than the narrow.—The Velocity of the ærial Waves, or of Sound, is equible and uniform, and *ectoris paribus*, will paſs over Spaces proportional to the Times; that is, double the Space, in double the Time, and ſo on. Adverſe or conſpiring Winds make but a ſmall Difference in the Velocity of Sounds, (tho' very conſiderable in their Loudneſs) too ſmall to be diſtinguiſhed in ſeveral Miles, tho' in great Diſtances the Difference is ſenſible. All Sounds, proceeding from whatever ſonorous Bodies, whether intenſe or weak, grave or acute, move with the ſame Degree of Velocity, which is at the Rate of 1142 Feet per Second, or nearly a Mile in $4\frac{1}{2}$ Seconds. The Diſtance to which Sounds may be heard depends upon many concurring Circumſtances, viz. Firſt, the Intenſity of the Stroke made on the tremulous Body emitting the Sound; for, the greater the Stroke is, the greater will be the Agitation of the Particles of the ſonorous Body, and conſequenily the greater will be the Force with which they will impreſs the contiguous Particles of Air; and the greater the Force is impreſſed upon Air, the more cloſely will it be condenſed, and with greater Violence expanded; hence the greater will be the Stroke at any given Diſtance on the Drum of the Ear, and conſequently the greater will be the Diſtance at which the

Agitation

Agitation of the Air, will be ſenſible. Secondly, the Denſity of the Air; for the more denſe the Air is, the louder will the Sound be from the ſame Cauſe; and, as the Loudneſs of the Sound depends upon the Magnitude of the Force impreſſed upon the Air, by the tremulous Body, it follows, that the more denſe the Air is, the greater will be the Force impreſſed upon the Air, by a tremulous Body agitated with the ſame Degree of Violence, and conſequently the Sound will be heard at a greater Diſtance. Thirdly, conſpiring Winds; for as the Particles of Air contiguous to the ſonorous Body, receive a certain Quantity of Motion at each Vibration of the Body, they communicate Motion to thoſe next them, they to others, and ſo on ſucceſſively; but, as the circular Waves continually increaſe in their Surface as they depart from the Center, they muſt conſequently communicate Motion to larger Portions of Air, ſo that the Force not the Velocity of their Motions muſt conſtantly decreaſe, till finally it will be ſo far loſt, as not to be perceptible to the Ear; this takes place in a perfect Calm: But when a current of Air conſpires with this undulatory Motion, it meets with leſs Reſiſtance, and conſequently will have the ſame Force, and be audible at a greater Diſtance. There are numerous Experiments by which it has been found, that Sound is audible, Sixty or Eighty Miles: And in the Fight between England and Holland A. D. 1662, the Report of the Cannon was heard at the Diſtance of 200 Miles.

In order the more effectually to comprehend the Nature of Sound, and conceive of the Manner in which that Perception is excited in the Mind, it will be neceſſary to have ſome Knowledge of the Mechaniſm of the Ear, which, of all the Organs of Senſe is the moſt wonderful and complex. I ſhall not here attempt an exact anatomical Deſcription of the Ear, but conſider it ſo far only, as may be neceſſary in ſome Degree to aſcertain the Modus of Hearing.—The external Part of the Ear, or that which is without the Head, is moſt curiouſly contrived to collect the ſonorous Rays (in like Manner as a concave Mirror collects the Rays of the Sun) which meets in a *Focus* at the Entrance of the *Meatus auditorius*, or Paſſage which leads directly into the Head to the internal Ear, by which means the moſt obſcure Sounds may be rendered audible. The *Meatus auditorius* is a Tube compoſed partly of Cartilage, partly of Bone, lined with a ſmooth nervous Membrane defended with a viſcid Water and Wax; whence, it is extremely well adapted to convey Sounds from without, inward without corrupting them. In its Courſe inward, it proceeds not in a ſtrait Line, but firſt aſcends, then deſcends, then aſcends again in a ſerpentine Manner till it terminates in the Membrane of the *Tympanum*, or Drum of the Ear; which winding Courſe, by increaſing its Length, ſerves to increaſe the Number of Reflections, and Loudneſs of the Sounds. At the End of the *Meatus auditorius*, there is a fine nervous Membrane ſpread acroſs, called the *Membrana Tympani*, or Membrane of the *Tympanum*; upon the Center of which, the tremulous Concuſſions of the Air, after various Reflections and Reverberations through the *Meatus auditorius*, are impinged. Under this Membrane, is the Cavity of the *Tympanum*, which contains a Portion of common Air, but has no natural Communication with the external Ear; there is a Tube which leads from thence, into the Mouth behind the Tonſils; by means of which, the Air from the *Tympanum*, may be expelled, or freſh Air admitted. Under the Membrane of the *Tympanum*, there is a Nerve extended acroſs, in like Manner that Chords are extended acroſs the Parchment of the Bottom of a Drum. The Membrane of the *Tympanum*, is furniſhed with proper Muſcles, by means of which, it may be ſtrained or relaxed, according to the variety of Sounds, that it may be capable of coming into Uniſon, or correſpond Harmonically, to all Sounds; otherwiſe, it would be affected with only one Sound, namely, that, with which, it was in Concord. There are in the Labyrinth of the Ear, four little Bones furniſhed with proper Muſcles, very uſeful in the Operation of Hearing. Theſe are called

the

the *Malleus*, the *Incus*, the *Os Orbiculare*, and the *Stapes*. The Membrane of the *Tympanum* is connected with the Handle of the *Malleus*, which is articulated with the *Incus*; the Incus is connected with the *Os Orbiculare*, and *Stapes*; which laſt, by Means of a Membrane, adheres to the *Feneſtra Ovalis*. The *Feneſtra Ovalis*, is an opening into another Cavity of the Ear, called the *Veſtibulum*; the leſſer Part of which, communicates with the ſuperiour Part of the *Cochlea*. The *Cochlea*, is a hollow ſpiral Body, containing two Circumvolutions and an half, in order to increaſe its Length; the Neceſſity of which, will, by and by be perceived, in its Uſe; it is the inmoſt Cavity of the Ear, and properly the Place, where Sounds are the moſt diſtinctly impreſſed upon the auditory* *Nerve*. The *auditory Nerve*, enters into the *Veſtibulum* by ſeveral little Holes, and forms a curious Lining all over the inſide Surface of it. Theſe *Nerves* alſo, paſs into the *Cochlea*; and branch themſelves out into an exquiſite Membranous Expanſion on each Side of the ſame, which thus becomes the more immediate Organ of Hearing. The Cavity of the *Veſtibulum* is always filled with an elaſtic Air, tho' there appears no viſible Way by which it can enter.

Having thus premiſed a Deſcription of the Organ of Hearing, we ſhall better conceive the Nature of, and the Manner in which, Sounds are excited in the Mind. When the Air is put into a tremulous Motion by the Vibrations of a ſonorous Body, the ſonorous Rays are collected by the external Ear, and concentered into a *Focus*, at the Entrance of the *Meatus auditorius*, where they are condenſed by various Reflections through that Paſſage, to their Incidence on the *Membrana Tympani*; which, being actuated by its proper Muſcles for that Purpoſe, is rendered more or leſs lax or tenſe, as the Tone of the Sound is more or leſs acute or grave, and thus be fitly adapted to vibrate in Correſpondence with the vibrating Body. This Membrane being connected with the *Malleus*, will excite that into harmonical Tremors; and the *Incus* being connected with the *Malleus*, muſt be agitated in the ſame Manner, and communicate the like Tremors to the *Os Orbiculare*, and *Stapes*; and the Membrane which ſhuts the *Feneſtra Ovalis*, being contiguous to the *Stapes*, muſt ſuffer the like Agitations, which will be communicated to the elaſtic Air in the *Veſtibulum*, and *Cochlea*, and conſequently to the auditory Nerve itſelf. The Membrane which ſhuts the *Feneſtra Ovalis*, by a curious Apparatus of the Parts, in like Manner as the Membrane of the *Tympanum*, may be intended, or remitted, in a vaſt Variety of Degrees, ſo as to be adapted for every Sort and Degree of Sound; and for communicating them to the internal Air, which affects the Nerves expanded over the internal Surface of the *Veſtibulum* and *Cochlea*, with ſimilar and correſponding Tremors. There is ſomething extremely curious in the Expanſion of the Nerves over the ſpiral Fabric of the *Cochlea*; for they are contrived, like ſo many Strings of an Harpſichord, of various decreaſing Lengths, and different Octaves, that ſo, ſome or other of them, may be of a proper Length to be in Concord with the ſounding Body, and to tremble with the ſame Vibration; which, by the Continuation of the Nerves, are conveyed to the common Senſory in the Brain, where the Mind perceives, and diſtinguiſhes the infinite Differences of harmonious and diſcording Tones. Having treated thus far of the Nature of Sounds in general, the Organ of Hearing, and the Manner in which Sounds are impreſſed upon that Organ, I ſhall now add ſome few Obſervations on thoſe particular Sounds, called harmonious or muſical Tones. When

* The Nerves are cylindrical, whitiſh Fibres originating in the Brain, and running from thence to every Part of the Body capable of Senſation. They are the immediate Inſtruments of Senſation, Motion, and Nutrition of the ſeveral Parts of the whole human Fabric.—It is by means of the Nerves that we ſee, hear, taſte, ſmell and feel, and if they are ſuſpended in their Origin, all the animal Functions immediately ceaſe, and Death enſues. They may, therefore, properly be called the immediate Organs of Perception.

When the Air is uniformly agitated by an homogeneous elaſtic Body for a Length of Time ſufficient to gain the Attention, it conſtitutes a muſical Tone or Sound, which will be either acute or grave in Proportion to the Number of Vibrations performed in a given Time. The quicker the Succeſſion of the Vibrations is, the more acute is the Tone and *è contra*. But theſe reciprocal Tremors of the Air muſt be to a certain determinate Degree of Quickneſs in order to produce Sound. For if there are fewer than five or ſix Hundred in the Space of a Second of Time, they will not produce Sound to a human Ear; about that Number being the graveſt audible Tone; and on the other Hand. if more than ſix or ſeven Thouſand, ſucceed each other in the ſame Space of Time, no Sound will be produced in us; becauſe, correſponding Tremors, or Vibrations, in the Organ of Hearing, cannot take Place. All Sounds, from the loudeſt to the loweſt, which proceed from the Vibrations of the ſame Body, are of the ſame Tone; the Magnitude of the Stroke, upon the ſonorous Body, though it increaſes the Loudneſs of the Sound, yet adds not to the Acuteneſs of it, becauſe, the Vibrations are made in equal Times, and the Times of the Vibrations, are what conſtitute the Acuteneſs or Gravity of the Sound. Therefore, all ſonorous Bodies of whatever Kind, or Nature, which produce an equal Number of Vibrations in the ſame Time, will yield one and the ſame Tone called an *Uniſon*, which is the moſt perfect Concord. In this Caſe, the Number of Vibrations, though performed by a Variety of Bodies perfectly coinciding, the Air will be uniformly agitated, and affect the Ear with a ſimple Sound, increaſed only in Loudneſs by the Number of ſonorous Bodies. In Truth and Fact, this is very generally the Caſe with what we call ſimple Sounds; for let any Sound be made, either with the Voice, or any ſonorous Body, every other ſonorous Body near it, and in Uniſon with it, that is, ſuch as perform an equal Number of Vibrations in the ſame Time, will be thereby made to Sound. For the Vibrations of the Air, which correſpond to the Tremors of the firſt ſounding Body, agreeing exactly in Point of Time, with thoſe, which are capable of being given to the other Body in Uniſon with it, when they have, by their Impulſe communicated a ſmall Degree of Motion to it, will, by conſpiring with it, as it moves backwards and forwards, continually increaſe its Motion, till it becomes ſenſible. So that the greater Number of ſonorous Bodies there are in Uniſon with the firſt ſounding Body, and near enough to be ſenſibly affected with its Tremors, the louder will the Sound be; and will ſeem to the Ear, to be a ſimple unmixt Sound. And, not only thoſe Bodies, which are in Uniſon with the firſt ſounding Body. but Bodies which naturally yield a Tone an *Octave*, *Fifth*, or *Third*, *greater* or *leſſer*, more grave or acute than the firſt ſounding Body, will be made to tremble and yield their natural Tone in Concord with the firſt, though not in equal Degree with a perfect *Uniſon*. But, when ſonorous Bodies are in Diſcord with each other, that is, when their Vibrations are not performed in equal Times, or in *Octave*, *Fifth*, or *Third*, *greater* or *leſſer*, the Reverſe of this will take Place. For, though the firſt Vibration of one, may give Motion to the reſt, yet as they are unequal in the Times of their Vibrations, and not within the Reach of concording Vibrations, there will be a croſſing of Motions more or leſs according to the Inequality; by reaſon of which, the Motions of the untouched Bodies, will be ſo checked, as never to be ſenſible. With reſpect to two Muſical Chords of the ſame Species of Matter, ſtretched with the ſame Degree of Force, and of the ſame Magnitude, but one double the Length of the other, it may be obſerved, that the longer naturally yields a Tone one Octave lower than the ſhorter; by reaſon of its making but half the Number of Vibrations in the ſame Time, but if the ſhorter be made to ſound, the two Extreams of the longer, if within a proper Diſtance, will each ſound an Uniſon with it, while the middle Point remain at Reſt. So likewiſe, if one be thrice the Length of the other, and under the

the ſame Circumſtances, beforementioned, if the ſhorter be made to vibrate, the other will be divided into three Parts, each of which will ſound an Uniſon with the ſhorter, and the two Points between thoſe Parts, will remain at Reſt. And unleſs this was to take Place, that Chord which vibrates twice, while the other once, muſt neceſſarily interfere with it at every ſecond Vibration; and that which vibrates thrice, while the other once, wou'd interfere with it at every third; ſo that it would not be put into a ſufficient Motion to produce Sound. But, when it is divided by the quieſcent Points, it becomes ſo many Chords at Uniſon with the former, each of which eaſily receives its Vibrations from thence.——Thus we have attained the Idea of a moſt perfect Concord, called an *Uniſon*, which is no more than an exact Correſpondence of the Vibrations of ſonorous Bodies, reſpecting Time; for the Ground and Reaſon of Concordance among Muſical Sounds, is, the Coincidences of the Vibrations of ſonorous Bodies. The next moſt perfect Concord, is what is called the *Octave*, and differs from an *Uniſon* in this, that in two Muſical Chords or Strings, the one of which yields a Tone an Octave more acute than the other, it performs double the Number of Vibrations in the ſame Time; whereas in an Uniſon, the ſame Number is performed in the ſame Time. An Octave comes the neareſt to an Uniſon, of any poſſible Sound in Nature; and therefore is called the next moſt perfect Concord; becauſe the more acute Octave, makes preciſely two Vibrations while the more grave or deep one, makes one; conſequently there is a Coincidence at every Vibration of the grave, and at every other of the acute. Hence Uniſon and Octave, by reaſon of their near Reſemblance, have been miſtaken for one and the ſame Sound. When the Times of the Vibrations of two Muſical Chords, are as two to three, the Coincidence will be at every third Vibration of the quickeſt; which is therefore in the next Degree of Perfection, and called a *Fifth*. If the Times of the Vibrations, are, as three to four, the Coincidence will be at every fourth of the leſſer; and this is called a *Fourth*. But this, and the two next which follow in order, viz. four to five, and five to ſix, which make the *Third greater* and *Third leſſer*, are not ſo pleaſant and agreeable to the judicious Ear; and are therefore called imperfect Concords. If the Coincidences become leſs frequent than theſe, the Conſonance is intolerable to a Muſical Ear, and conſtitutes what is called Diſcord. The Difference, therefore, between Concord and Diſcord among Sounds, ſeems to ariſe, from the different Proportions of the Vibrations of ſonorous Bodies; that is, from the frequency of the Coincidences of their Vibrations. The more frequent the Vibrations of two Muſical Chords coincide, the more perfect the Concord, and the more agreeable to the Ear, is the compound Sound; and, *vice verſa*. But, the eſſential Difference between Concord and Diſcord; that is, the Reaſon why the one ſhou'd be agreeable, the other diſagreeable, ſeems to be beyond the Reach of natural Philoſophy to account for. There does not appear any natural Aptitude in the two Sounds of a Concord, to give a pleaſing Senſation, more than in two of a Diſcord; this muſt be releaſed into the Divine Will, which, has thought proper to impreſs us, with pleaſing or diſpleaſing Perceptions, from thoſe particular Circumſtances of Sound. We know from Experience, what Proportion of Vibrations are pleaſing, and, what not; and, we know likewiſe how to expreſs their Difference by the Proportion of Numbers. We know *what* is pleaſing, tho' we do not know *why*; for Inſtance, we know that the Ratios of one to two which we call an Octave, conſtitute a Concord, and ſix to ſeven a Diſcord; but on what original Syſtem, pleaſing or diſpleaſing Ideas, are connected with thoſe Relations, ſeems to be above the Reach of our Faculties to determine.

The following Ratios, or Compariſons, of the Lengths of Chords, of the ſame Diameters, and ſtretched with equal Forces will be Concords, viz. 2 to 1, 3 to 2, 4 to 3, 5 to 4, 6 to 5, 5 to 3, and 8 to 5; that is, by taking any Chord for a Fundamental, repreſented by 1, the following Diviſions thereof will be all Concords with the whole; as $\frac{1}{2}$ $\frac{2}{3}$ $\frac{3}{4}$

$\frac{1}{2}, \frac{4}{7}, \frac{5}{9}, \frac{3}{5}, \frac{5}{8}$ —I will here ſubjoin a Table of all the Concords, between the Ratio of Uniſon, or 1 to 1, and the Octave 2 to 1; expreſſing the Ratio's or Comparitons of the Lengths of the Chords, and their Vibrations, the Frequency of their Coincidences with the fundamental or graveſt Tone, Names expreſſing their Intervals, and Degrees of Perfection.

Length.	Vibrat:	Coin.	Names.		This Table wants but little Explanation; take an Example of the *Fifth*; the Length of the Chords ſounding this Concord, muſt be as 3 to 2, the Vibrations will be as 2 to 3, the Coincidence of their Vibrations, will be at every ſecond Vibration of the Fundamental, or ſloweſt vibrating Chord; it is called a *Fifth*, as being the fifth Note from the Fundamental, or Key-Note incluſive; and is the next perfect Concord to an Octave; as will readily appear from an Inſpection of the Table.
1 to 1	1 to 1	1	Uniſon.	Moſt perfect.	
6 to 5	5 to 6	5	Third leſſer.	Imperfect.	
5 to 4	4 to 5	4	Third greater.	Imperfect.	
4 to 3	3 to 4	3	Fourth.	Imperfect.	
3 to 2	2 to 3	2	Fifth.	Perfect.	
8 to 5	5 to 8	5	Sixth leſſer.	Imperfect.	
5 to 3	3 to 5	3	Sixth greater.	Imperfect.	
2 to 1	1 to 2	1	Octave.	Perfect	

By this Table it will appear, that in Concords the greateſt Number of Vibrations of the Fundamental cannot exceed five; that is, there will be no Concord where the Fundamental makes more than five Vibrations to one Coincidence of the acute Term.

Among the many wonderful Effects, which are ſaid to be produced by Muſick, none is more extraordinary than that which it has on thoſe, who have been bit by the *Tarantula*. As there is ſomething curious in the Account given of it by good Authority, perhaps a ſhort Relation may not be unacceptable. The *Tarantula*, is a large Spider, about three quarters of an Inch long, and as big as one's little Finger; they are Natives of *Aupulia* in the Kingdom of *Naples* in *Italy*. They are not venomous, but in hot Weather; at which Time, whoever is bit by them after ſome Time loſes both Senſe and Motion, and dies if deſtitute of Help. The moſt effectual Remedy is *Muſic*. The Muſician tries a Variety of Airs, till he hits upon one, that effects the Patient, who upon that begins to move by Degrees; firſt keeps Time with his Fingers, Arms, and Legs, afterwards is violently agitated in every Part of his Body; and then leaps up, begins to dance, and increaſes in Activity every Moment: till after five or ſix Hours, being very much fatigued, he is put to Bed and left to ſweat. The next Day the ſame Air brings him out of Bed for a new Dance. Which Exerciſe being thus continued, the Diſtemper is abated in the Space of four or five Days; the Effects of the Bite being in ſome Meaſure carried off by Sweat, and the Patient begins then to recover his Senſe and Knowledge by little and little. This Cure ſeems to be for a Seaſon only, for the Symtoms come on again about the ſame Time the next Year; and are again carried off in the ſame Manner; and if they ſhould neglect to carry off this Relapſe by Muſic and Dancing, they fall into incurable Diſorders of which they in a few Years die. As Muſic is the common Cure, ſo they who are bitten are pleaſed, ſome with one ſort of it, and ſome with another; one is pleaſed with a Pipe, another with a Timbrel, one with a Harp, and another with a Fiddle: ſo that the Muſicians ſometimes make ſeveral Eſſays before they can accommodate their Art to the Venom: but this is conſtant and certain, notwithſtanding this Variety, that they all require the quickeſt and briſkeſt Tunes; and are never moved by a ſlow dull Harmony.

The Reaſon that is given why the Patient is thus affected by *Muſic*, is becauſe the Nerves of his Body are ſo diſpoſed in that Diſtemper, as eaſily to be agitated by the Vibrations which are occaſioned by the Principle and ſtronger Notes of what is played.

On MUSIC.

From a Miſcellany of the Rev. Dr. BYLES.

DOWN ſteers the *Baſs* with grave Majeſtic Air,
And up the *Treble* mounts with ſhrill Career;
With ſofter Sounds, in mild Melodious Maze,
Warbling between the *Tenor* gently Plays:
But if th' aſpiring *Altus* join its Force,
See! like the Lark, it Wings its tow'ring Courſe;
Thro' Harmony's ſublimeſt Sphere it flies,
And to Angelic Accents ſeems to riſe;
From the bold Height it hails the echoing *Baſs*,
Which ſwells to meet, and mix in cloſe Embrace.
Tho' diff'rent Syſtems all the Parts divide,
With Muſic's Chords the diſtant Notes are ty'd;
And Sympathetick Strains enchanting winde
Their reſtleſs Race, till all the Parts are join'd:
Then rolls the Rapture thro' the Air around
In the full Magic Melody of Sound.

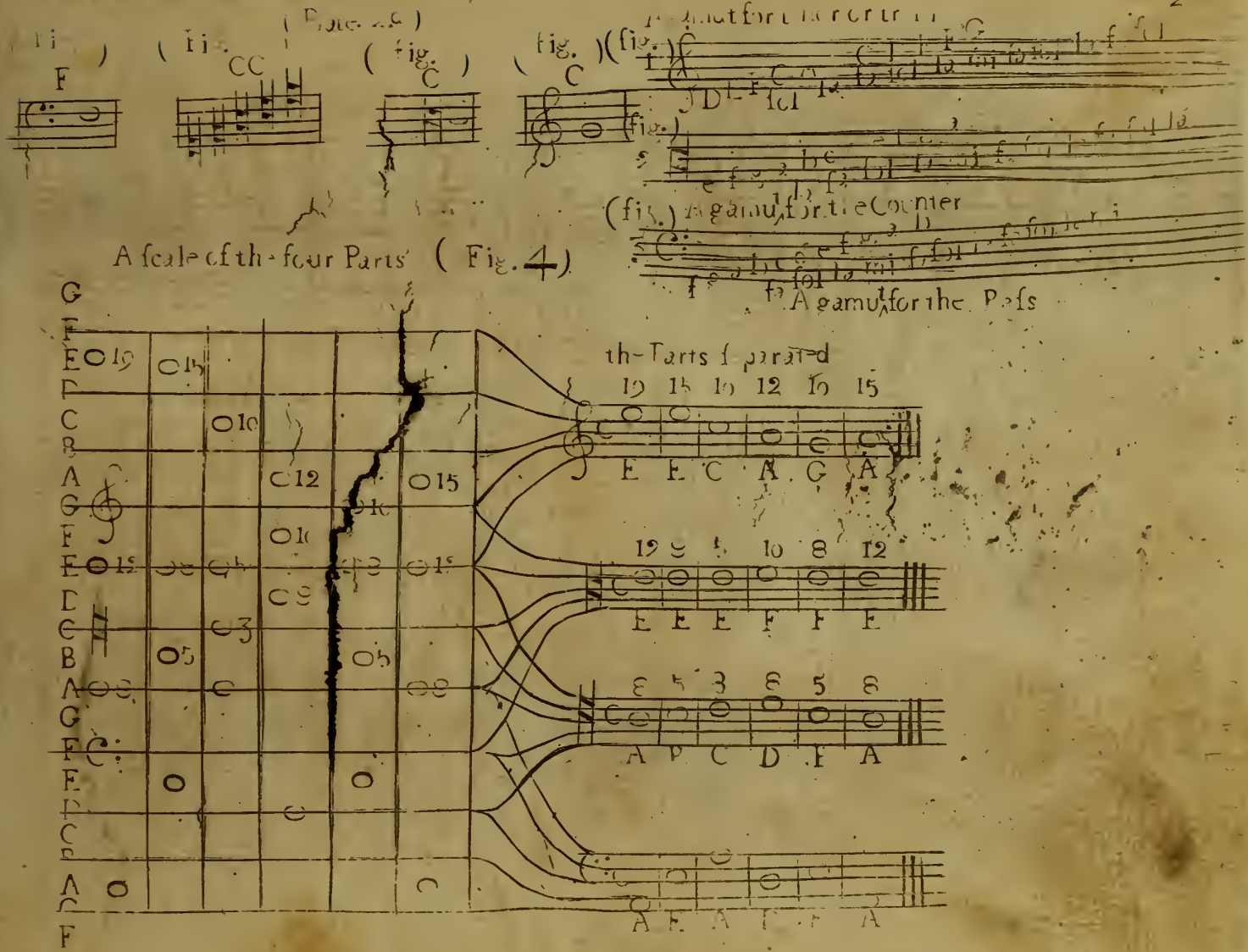
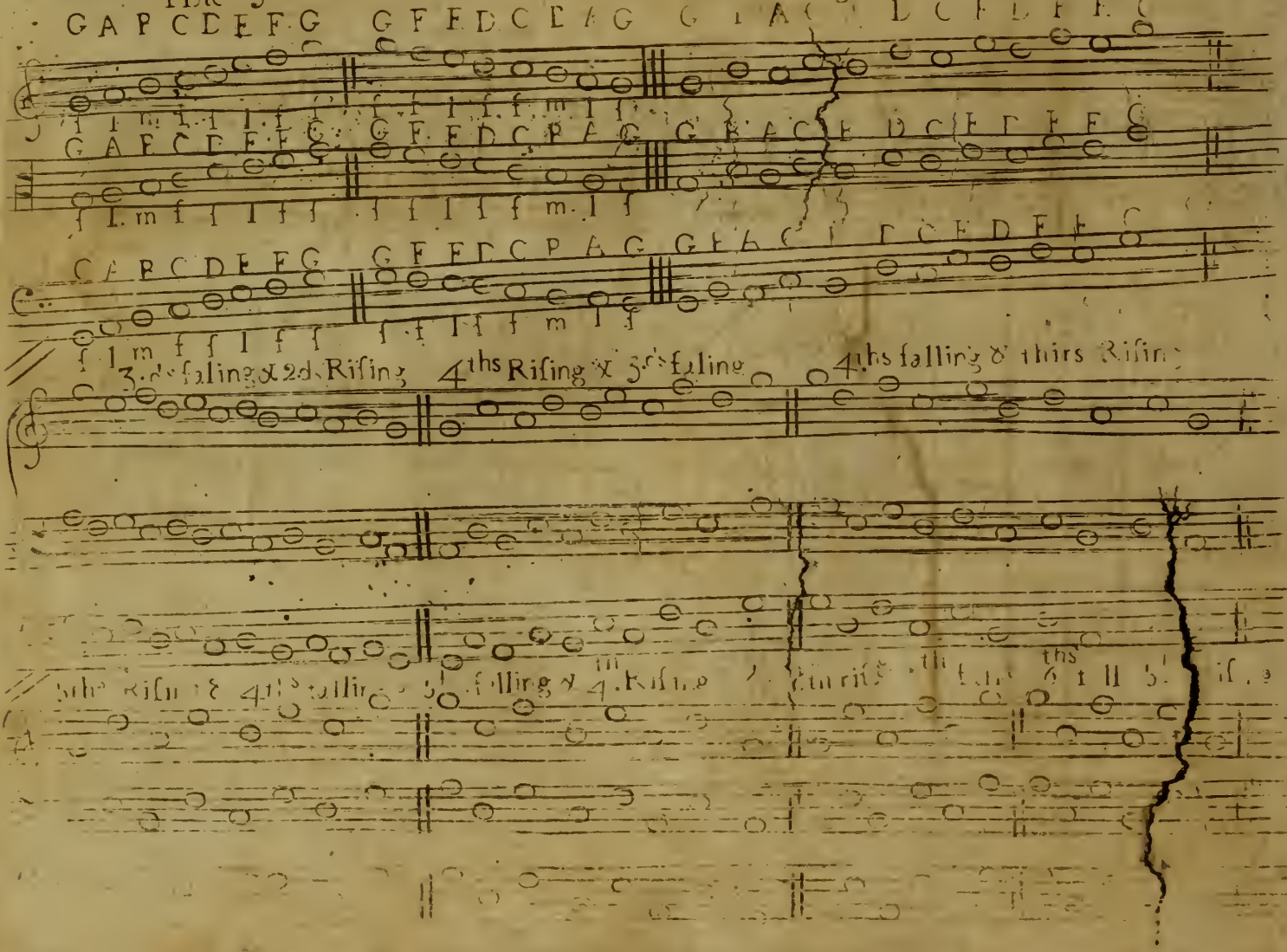
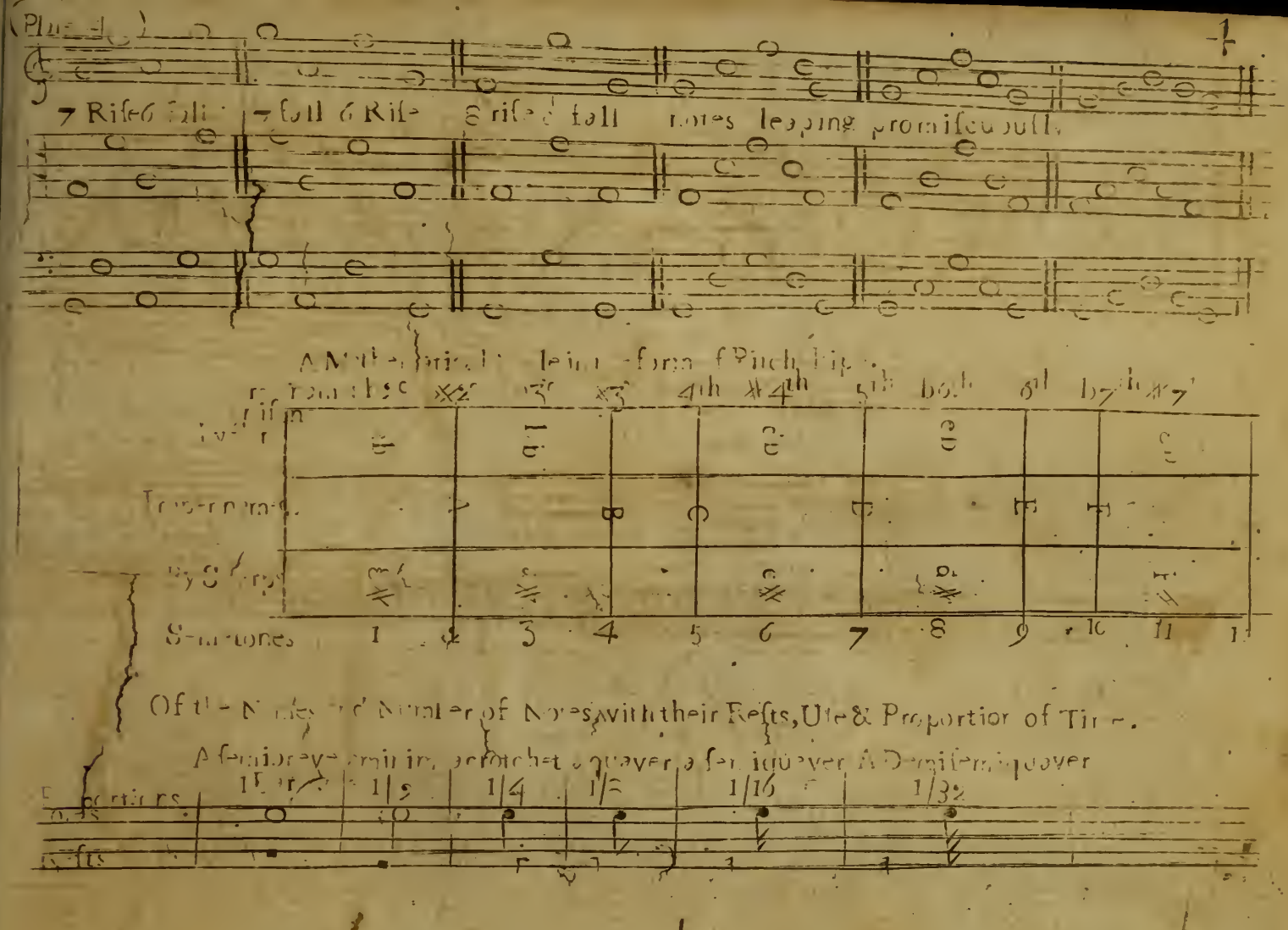
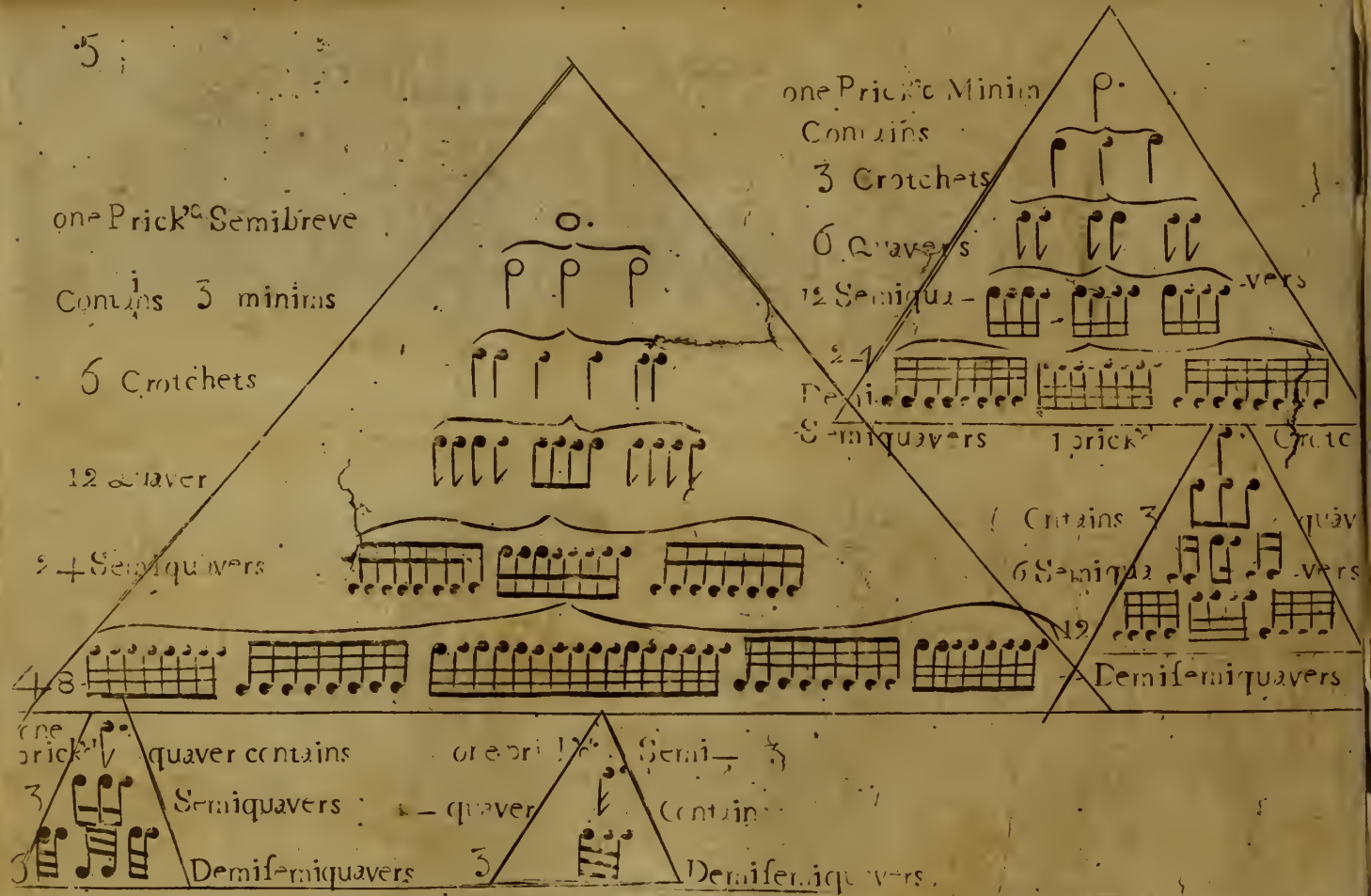

A scale of the four Parts (Fig. 4)
A gamut for the Parts
A gamut for the Counter
A gamut for the Parts
th-Parts separated

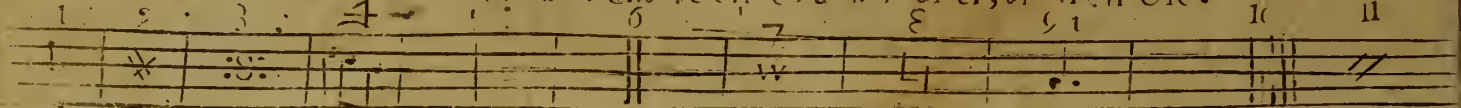
Plate 3


3.ds falling & 2ds Rising
4ths Rising & 3ds falling
4ths falling & thirs Rising


7 Rife 6 fall 7 fall 6 Rife 5 rife 5 fall tones leaping promiscuously.
A Monochord to explain the form of Pitch Pipes
Semitones
Of the Notes and Number of Notes with their Rests, Use & Proportion of Time.
A semibreve minim crotchet quaver a semiquaver A Demisemiquaver
Rests
Notes



Chap 5th of other Characters Us'd in Musick, and their Use.



1 a Sharp. A repeat. A Turn. a single Bar. Accolade. a Direct. a Natural. A Slur. A Cliffe. Dividers.

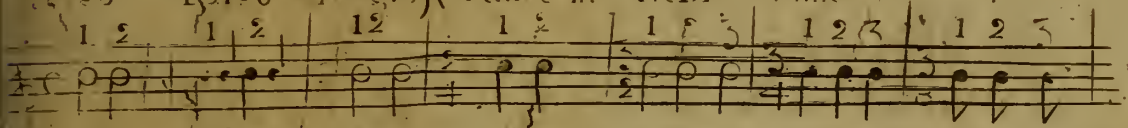
the manner of reading musick flowing out of the use of flats & sharps in the clefs ... ers shown the transposition of mi seven times by flats & seven times by sharps.

Plate 12)

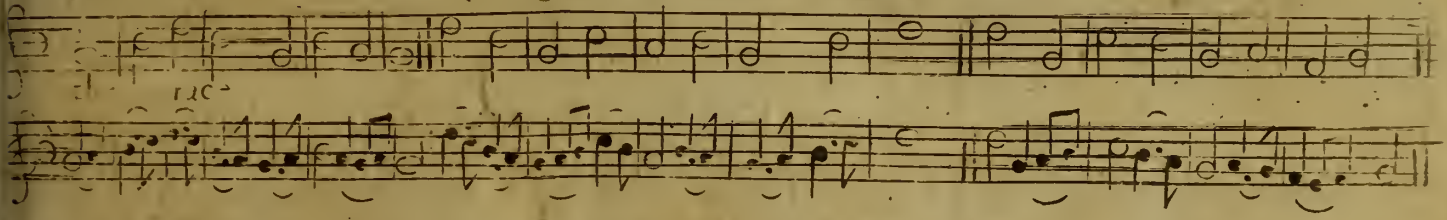
	open key	1 flat	2 b	3 b	4 b	5 b	6 b	7 b	1 ♯	2 ♯	3 ♯	4 ♯	5 ♯	6 ♯	7 ♯
G	sol	sol	la	la	mi	bfa	bfa	bfbi	fa	fa	♯mi	♯la	♯la	♯fol	♯fol
E									♯mi	♯la	♯la	♯fol	♯fol	♯fa	♯fa
C	la	mi	bfa	bfa	bfol	bfol	bla	bla	la	fol	fol	fa	fa	♯mi	♯la
A									fol	fa	fa	♯mi	♯la	♯la	♯fol
F	fa	la	fol	la	la	mi	bfa	bfa	fa	♯mi	♯la	♯la	♯fol	♯fol	♯fa
D									la	la	fol	fol	fa	fa	♯mi
B	fol	fol	la	la	mi	bfa	bfa	bfol	fol	fa	fa	♯mi	♯la	♯la	♯fol
G															
E	mi	bfa	bfa	bfol	bfol	bla	bla	bmi	la	la	fol	fol	fa	fa	♯mi
C															
A	fol	fol	la	la	mi	bfa	bfa	bfol	fa	fa	♯mi	♯la	♯la	♯fol	♯fa
F															
D	la	mi	bfa	bfa	bfol	bfol	bla	bla	la	fol	fol	fa	fa	♯mi	♯la
B															
G	fol	fol	la	la	mi	bfa	bfa	bfol

An Example of the four Several moods in Common Time

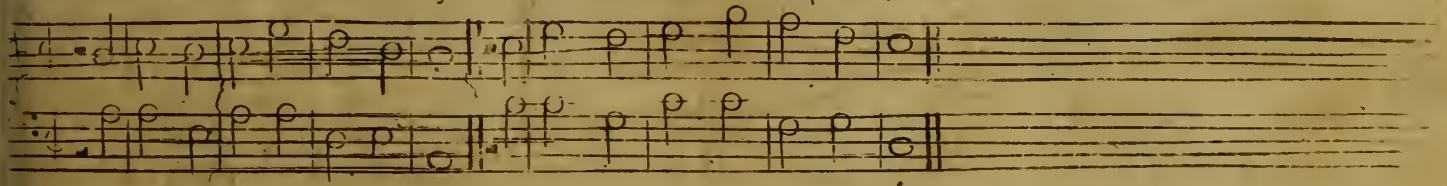
(Largo Larso Alegro) (Time in Treble Time.



Flat Natural Prick'd) (the grace of transition.)

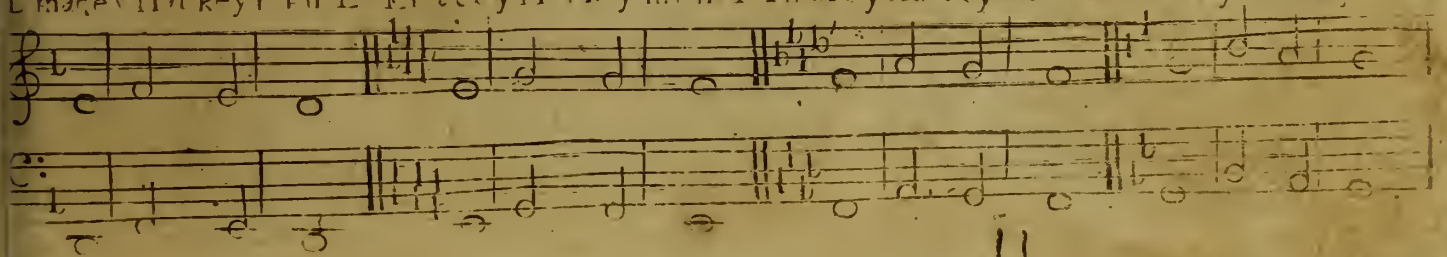


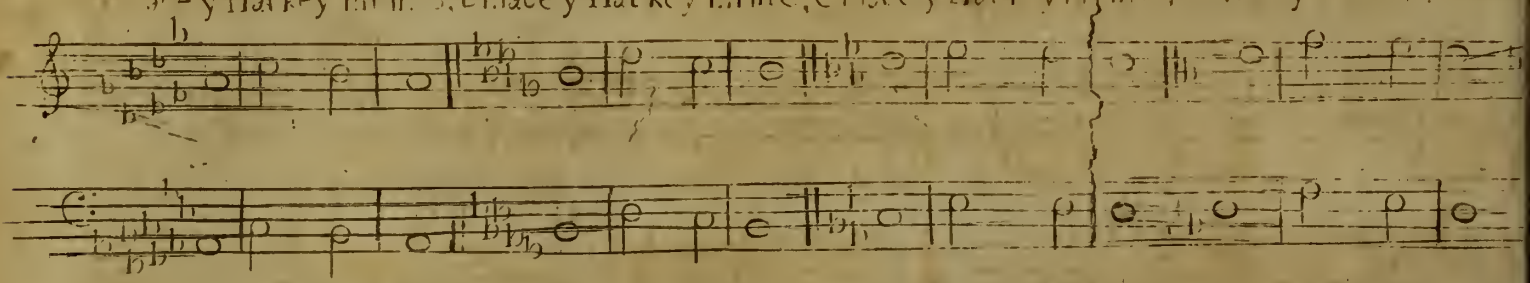
A the Natural flat Key C the Natural sharp Key



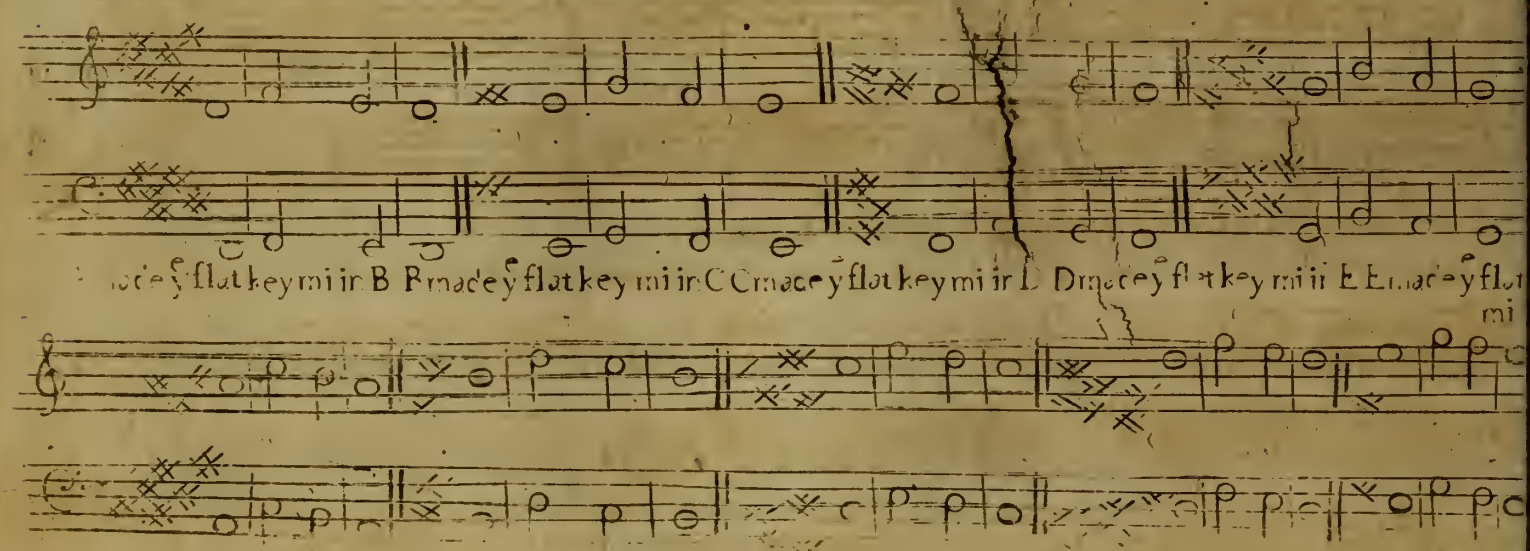
An Example of the Artificial flat Key by Flats.

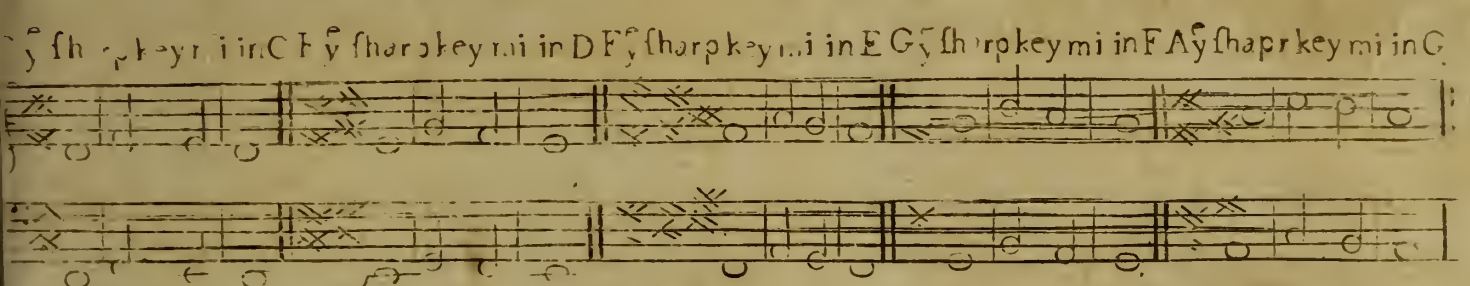
E made flat key for E F made key flat key mi in F F made key flat key mi in G G made key flat key



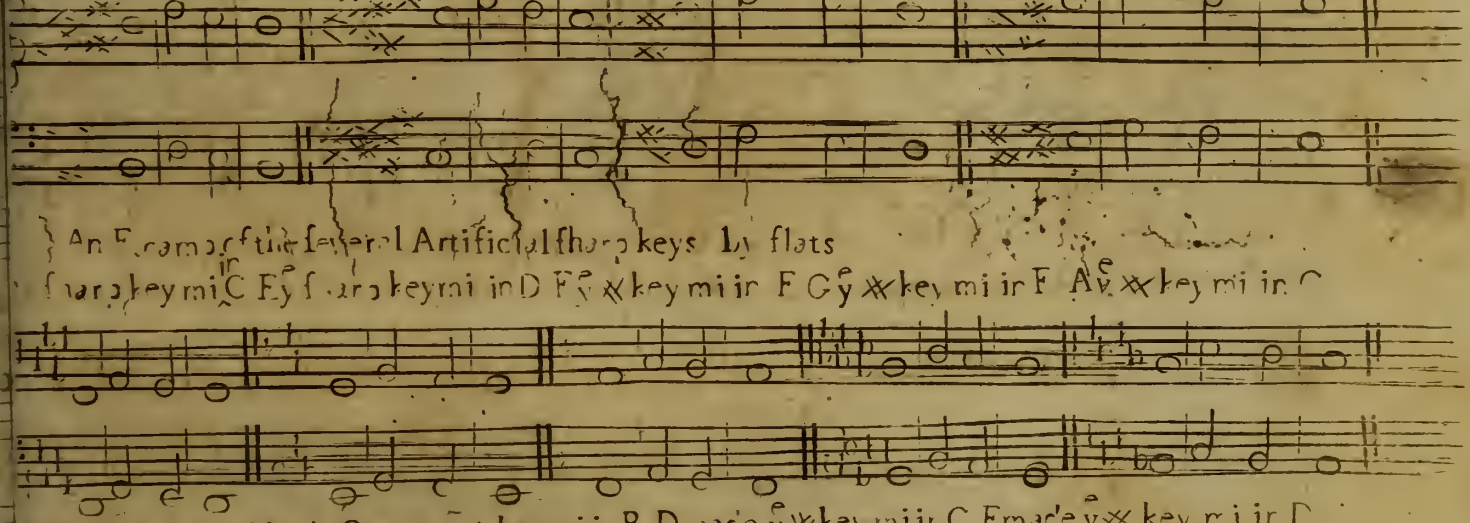


An Example of the Several flat Keys by sharps.





An Example of the several Artificial sharp keys by flats



An Introduction to the Rules of MUSICK, with ſuch Directions for Singing, as is moſt eaſy and neceſſary for Learners.

CONTENTS of Book I.

CHAP. I. Containing the Gamut, and the Explanation thereof; alſo the ſeveral Cliffs, and their Explanation.

CHAP. II. Containing a Scale of the four Parts, as they are ſet down according to the Gamut. Alſo the Parts ſeparated, whereby you may ſee the true Diſtance of each Part from the Baſs, as they are figur'd.

CHAP. III. Containing Rules for tuning the Voice; alſo an Explanation of a Concert Pitch-Pipe.

CHAP. IV. Containing ſome Characters us'd in Muſick with their Explanation; alſo an Example of prick'd Notes.

CHAP. V. Containing ſome other Characters made Uſe of in Muſick; and their Explanation.

CHAP. VI. Containing an Example of the ſeveral Moods of Time, and how to beat them; alſo the Grace of Tranſition.

CHAP. VII. Containing an Example of the ſeveral Keys us'd in Muſick, and how to tranſpoſe B. Mi into any of them.

CHAP. VIII. Containing an Example of Concords and Diſcords.

CHAP. IX. Containing ſome thoughts upon Muſick.

CHAP. X. Containing an Alphabetical Table of ſuch Terms as are generally us'd in Muſick. Alſo a New-England Hymn by the Rev. Dr. Byles.

Explanation

CHAP. I.

Explanation of the GAMUT.

THE Gamut is founded on no more than Seven Letters, viz. A B C D E F G, all above or below these are the same repeated over again, there being but Seven distinct Sounds in Nature, every Eighth or Octave being the same.

Observe, That in the first Column of this Gamut Mi is in B, in the Second Column B is Flat, M is in E, the Third Column B and E Flat, Mi is in A, the Fourth Column B. E. & A Flat, Mi is in D, the Fifth Column B. E. A. and D Flat, Mi is in G, the Sixth Column B. E. A. D. and G Flat, Mi is in C, the Seventh Column B. E. A. D. G. and C Flat, Mi is in F, the Eighth Column B. E. A. D. G. C. and F Flat, Mi is in B, which brings Mi into its Natural Place, according to the Poet.

By Flats the Mi is Driven Round,
Till forc'd in B, to stand its Ground.

In the Ninth Column F is Sharp, Mi is in F, the Tenth Column F and C is Sharp, Mi is in C, the Eleventh Column F. C. and G is Sharp, Mi is in G, the Twelfth Column F. C. G. and D is Sharp, Mi is in D, the Thirteenth Column F. C. G. D. and A is Sharp, Mi is in A, the Fourteenth Column F. C. G. D. A. and E is Sharp, Mi is in E, the Fifteenth Column F. C. G. D. A. E and B is Sharp, Mi is in B, which again brings Mi into its Natural Place, as the Poet expresses it,

By Sharps the Mi's led through the Keys,
Till brought Home to its Native Place.

Thus you have an Example of the Transportation of B. Mi through the Seven Letters both by Flats, and Sharps, which is as Extensive as possibly can be.

But three Flats and three Sharps is as many as is generally used, as thus,

THE SCHEME.

The Natural Place for Mi is in B, but

if B	be Flat Mi is in	E		if F	be Sharp Mi is in F
if B & E	be Flat Mi is in	A	And	if F & C	be Sharp Mi is in C
if BE & A	be Flat Mi is in	D		if FC & G	be Sharp Mi is in G

And when you have found Mi in any of these Variations the Notes above are Fa, Sol, La, Fa, Sol, La, and below are La, Sol, Fa, La, Sol, Fa, then comes Mi again.

In order to make you more Expeditious in finding your Mi, I have set the Letters under each Column into which Mi is transpos'd, and have likewise for the Benefit of the Sight, added a Row of Figures under the Letters which makes it very Easy to find the Column you are in pursuit of, and when you have found your Mi in any of all these Variations the Notes above are Fa, Sol, La, Fa, Sol, La, and all below are La, Sol, Fa, La, Sol, Fa. And then comes Mi again.

All your Notes above your Mi, twice Fa, Sol, La, as you may see,
And all below your Mi do fall, twice La, Sol, Fa, as you may Call. (For Example, see P. 1.) Hav-

Having explained the Gamut in as clear a Light as I am Maſter of, I ſhall proceed to the Explanation of the Three ſeveral Cliffs, each in their Order.

Firſt, The F. faut or Baſs Cliff, is generally ſet on the higheſt Line but one of the Five marked as in page 2, it gives its place the Name of F, and when ſung muſt be called Fa, unleſs it is contradicted by Flats or Sharps at the beginning of a Tune.

Secondly, The C Sol faut Cliff is ſet on any one of the five Lines, as in page 2, and gives its Place the Name of C, and when ſung muſt be called Fa, unleſs contradicted as beforeſaid. This was formerly the Tenor Cliff, though it ſeems at preſent almoſt out of Faſhion, the Tenor now being commonly ſet in the G ſol.re.ut or Treble Cliff. But in the following Work, I have made uſe of the C Cliff for the Counter and placed it upon the middle Line, as in page 2, which muſt be called Fa, unleſs contradicted as beforementioned. This Cliff is now commonly us'd for the Counter, and in my Opinion, is the beſt of the Three for that Purpoſe.

Thirdly, The G.ſol.re.ut or Treble Cliff is commonly ſet on the Second Line from the Bottom, as in page 2, and when ſung muſt be called Sol, unleſs contradicted as aboveſaid, and is reckoned to be the beſt Cliff, either for Tenor or Treble of any now in uſe.

Here I think it may not be amiſs to exhibit an Example of the Gamut divided into the Three ſeveral Cliffs, after the Manner they are taught, by the help of which any Perſon may learn to call their Notes without the Aid of a Maſter, as in P. 2.

CHAP. II.

Containing a Scale of the four Parts, as they are ſet down according to the Gamut.

THIS Scale (ſee page 2,) plainly proves, the Treble to be naturally an Eighth above the Tenor, although I have often heard it diſputed. For ſome will ſay, if an Eighth, why not a Fifteenth; nay I have heard ſome poſitively affirm that it is a Fifteenth, which is ſo Inconſiſtent with Reaſon, that nothing but Ignorance could inſpire the Thought. But if ſuch Perſons will but give themſelves the Trouble to look into this Example, they will preſently find themſelves in a groſs Miſtake. Becauſe from the loweſt Space in the Baſs, which is upon A, to the higheſt Space in the Treble, which is upon E, is but a Nineteenth which you may eaſily ſee by counting up the Letters between them; whereas according to their Opinion, if you were to raiſe it the other Eighth, it would be a Twenty Sixth, which is almoſt out of the Reach of the human Voice. On the other Hand, if you will look into the Parts ſeparated, you will find the Treble ending upon A. and likewiſe the Tenor. Trace them back into the Scale, and you will find them exactly an Eighth apart, which is a plain Demonſtration that a Man cannot ſing a proper Treble without counterfeiting a Woman's Voice, which is very unnatural, and in the Ears of moſt Judges very Diſagreable: Neither can a Woman ſing a proper Tenor without counterfeiting a Man's Voice, which is alſo unnatural and diſagreeable: But a Man may ſing a Treble the Eighth below, and a Woman a Tenor the Eighth above, and then they will act upon Principles of Nature, and may make good Muſic, for every Eighth or Octave in Effect is the ſame.

CHAP.

CHAP. III.

Containing Rules for tuning the Voice, &c.

OBSERVE, That in raiſing the Eight Notes, there are two Semi or half Tones, and thoſe are from Mi to Fa, and La to Fa, aſcending ; and from Fa to La, and Fa to Mi, deſcending. So that an Octave conſiſts of Five whole Tones, and two half Tones ; but for your better Inſtruction, obſerve the following Mathematical Scale, calculated to ſhew all the Semi Tones included in an Eighth or Octave with the Concords and Diſcords figured on the Lines and Spaces, by Way of Inches and half Inches, in Form of a Pitch Pipe, as in page 4.

Explanation of a Concert Pitch Pipe.

THIS Scale, which is drawn according to the Keys of an Organ, is preciſely ſix Inches long, and contains the ſeven Sounds in Nature, which may be divided into twelve ſemi or half Tones. N. B. G ſharp and a b are Uniſon to each other. B b and A ſharp, D b & C ſharp, E b & D ſharp, G b & F ſharp, &c. &c. &c. For Example, ſee P. 4.

CHAP. IV.

Containing ſome Characters us'd in Muſick, with their Explanations, &c.

THIS Table comprehends the Six ſeveral Sorts of Notes that are now in Uſe, with their Reſts under them, and their Names and Proportions at Top, which I ſhall explain in their Order, and begin with

1ſt. The Semibreve which is the longeſt Note now in Uſe, though formerly the ſhorteſt, whoſe Length and Proportion of Time, is as long as you may leiſurely tell 1. 2. 3. 4. your beſt Guide in this Caſe will be the Pendulum of a large Chamber Clock, four Vibrations of which being exactly the Time of one Semibreve : This is the Meaſure Note, and guideth all the Reſt.

2d. The Minim, is but half the Length of the Semibreve, having a Tail to it.

3d. The Crotchet is but half the Length of a Minim, with a black Head and Tail.

4th. The Quaver is but half the Length of a Crotchet, with a Tail turn'd up.

5th. The Semiquáver is but half the Length of a Quaver, with two Tails turn'd up.

6th. The Demiſemiquaver is but half the Length of a Semiquaver with three Tails turn'd up ; this is the ſhorteſt Note now in Uſe.

N. B. Reſts

N. B. Reſts are Notes of Silence, which ſignify that you muſt reſt or keep Silence as long as you would be ſounding one of the reſpective Notes to which they belong, as in page 4.

There is another Character uſed in Muſic, call'd a Prick of Perfection or Point of Addition, mark'd thus (.) when this Point is ſet to a Semibreve, it muſt be held as long as three Minims, becauſe it makes the Note half as long again as it was before. Here it may not be amiſs to give you an Example of prick'd Notes, as in page 5.

CHAP. V.

Containing an Explanation of ſeveral Muſical Characters.

First, A Flat is a Mark of Contraction, and ſerveth to ſink any Note half a Tone lower than it was before. Flats alſo us'd to regulate the Mi in the Tranſpoſition of Keys.

2d. A Sharp is a Mark of Extenſion, it being to raiſe a Note half a Tone higher than it was before. Sharps are alſo us'd to regulate the Mi in the Tranſpoſition of Keys.

3d. A Repeat is us'd to direct the Performer that ſuch a Part or Strain muſt be repeated over again, from the Note that it is ſet over or under. This Character is alſo us'd in Canons to direct the following Parts to fall in, at ſuch Notes as it is plac'd over.

4th. A Slur is in Form like a Bow drawn over or under the Heads of two, three or more Notes, when they are to be Sung but to one Syllable.

5th. A ſingle Bar ſerves to divide the Time in Muſic according to the Meaſure Note.

6th. A Double Bar ſerves to divide many Strains in Muſic. But if they be Dotted on each Side, thus :‖: it ſignifies that ſuch a Strain muſt be repeated over again. Double Bars are us'd in Pſalm Tunes, to divide the Tune into Metre, and likewiſe to ſtop to take Breath if you pleaſe.

7th. A Direct is plac'd at the End of a Line to direct the Performer to the Place of the firſt Note in the next Line.

8th. A Natural is a Mark of Reſtoration, which being ſet before a Note, that was made Flat or Sharp at the Beginning, reſtores it to its former Natural Tone.

9th. A Shake or Trill, is to direct the Performer to Shake or Grace any Note it is plac'd over.

10th. A Cloſe is three, four, or more Bars together, and always ſet after the laſt Note of a Piece of Muſick, which ſignifies a Concluſion, or the Cloſing of all Parts in a proper Key, as in page 5.

There is yet another Character call'd a Divider, commonly mark'd as in page 5, which Divides the Score of the Compoſition, ſhewing what Parts move together, and what do not.

CHAP. VI.

Of Time in its various Moods, and how to Beat it in each of them.

THIS Part of Muſick called Time, is ſo neceſſary to be underſtood that no Perſon can ever be able, without it, to Sing as he ought to do; neither can his Muſick yield any Delight to himſelf or others; for, if there be not an exact Agreement of Time in all the Parts, it cauſes the Muſick to Jarr and Diſagree; but, if rightly underſtood by all the Performers, it cauſes the Parts to move and Agree one with another, according to the Deſign of the Compoſer.

There are ſeveral Sorts of Moods for Time, yet all are deduced from two, viz. Common Time and Tripla Time, which are meaſured by either an even or odd Number of Notes, as 4 or 3; not preciſely ſo many Notes in Number, but the Quantity of ſuch like Notes, to be included in every Bar.

But next I ſhall give you an Example of the ſeveral Moods commonly us'd in Pſalmody, as in page 6.

Explanation of the ſeveral Moods.

THE Firſt of theſe Moods is called Adagio which is a very ſlow Movement. A Semibreve in this Mood is preciſely the Time of four Seconds. You may Beat it two ſeveral Ways, either with your Hand once down, and once up in every Bar, which is called Minim Beating, or twice down and twice up which is called Crotchet Beating. Where the Tune chiefly conſiſts of Minims, I would recommend the firſt but where the Muſick conſiſts of leſſer Notes, I would recommend the latter to be the eaſieſt and plaineſt Way, becauſe every Crotchet is exactly one Second, which is a very natural and eaſy Motion.

The ſecond Mood or Mark is called the Largo Mood being half as quick again as the former, ſo that three Minims in this Mood are to be perform'd in the ſame Time that two Minims are in the Adagio Mood, but it is often fix'd to Pſalm Tunes, in which the Crotchets and all other Notes in Proportion are Sung in the Time of Seconds, ſo as to make no Diſtinction between this and the Adagio Mood except in the Anthems and other briſk Pieces of Muſic.

The third Mood or Mark is called the Allegro Mood, being as quick again as the firſt, ſo that Minims in this Mood are Sung to the Time of Seconds. N. B. This is a very beautiful Movement, and if rightly perform'd carries great Life and Spirit with it.

There is another Mood ſometimes uſed in Pſalmody, mark'd as in page 6, and is called two from four, each Bar containing two Crotchets, one to be beaten down, and the other up. And Crotchets in this Time muſt be as quick as Crotchets in the Allegro Mood. Thus much for Common Time.

Explanation of the ſeveral Moods of Tripla Time

TRIPLA Time is meaſur'd by odd Numbers, as 3, 6, 9, &c. each Bar including either three Semibreves, three Minims, three Crotchets, or three Quavers, two of which muſt be ſung or play'd with the Hand down, and one up ſo that you are juſt as long again down as up. The firſt and Sloweſt Mood is called three to two, each Bar including three Minims, or one pointed Semibreve which are perform'd in the ſame Time as three Crotchets in Adagio. Two Beats down, and one up, mark'd thus $\frac{3}{2}$.

The

The ſecond Sort of Tripla Time is called Three from Four : Each Bar including three Crotchets, or one pointed Minim. A Crotchet in this Mood to be performed in the ſame Time as a Crotchet in Largo, two Beats down, and one up, mark'd thus $\frac{3}{4}$.

The third Sort of Tripla Time is called Three from Eight, each Bar including three Quavers or one pointed Crotchet, two Beats down and one up, each Bar being performed as quick again as Three from Four, mark'd thus $\frac{3}{8}$.

Thus much for Tripla Time.

In keeping Time the Hand may be a Guide,
Yet Thought's the Prime in which you muſt confide,
The moſt correct Way is to beat Time by Pendulums. *

C Of

* Four Pendulums, properly managed, will be ſufficient to regulate the Time of the ſeven Moods commonly uſed in Pſalmody. A Crotchet in the Adagio Mood, which ſeems to be the Theme or Root from whence all the other ſix are derived, is to be ſounded the length of one ſecond of Time or the Sixtieth part of a Minute ; conſequently a Pendulum, whoſe length from the point of ſuſpenſion to the Center of Oſcillation, (which in Pendulums made of very ſmall lines, is about the Center of the Bob,) is thirty nine Inches, and two tenths of an Inch, will vibrate it's true time. The Largo Mood is to be ſung quicker than the Adagio, in a proportion of 4 to 3 ; therefore a Crotchet in this Mood is to be ſounded in the Time of an Oſcillation of a Pendulum, which is twenty two Inches and one twentieth in length. As the Allegro Mood is as quick again as the Adagio, the Pendulum anſwering to Crotchets in that Mood will ſerve for Minims in this. In the fourth Mood of Common Time, marked thus ($\frac{2}{4}$) a Crotchet is ſung in the Time of a Crotchet in the Allegro, which is as quick again as the Adagio ; therefore the length of a Pendulum to vibrate Crotchets in this Mood, muſt be nine inches and eight tenths. The firſt two of the abovementioned Pendulums, may be applied to the two firſt Moods of Tripla Time. The Pendulum which Oſcillates the Time of Crotchets in the Adagio Mood, will Oſcillate Minims in the firſt Mood of Tripla Time ; marked thus ($\frac{3}{4}$). And the Pendulum which ſerves for Crotchets in the Largo Mood will ſerve for Crotchets likewiſe in the ſecond Mood of Tripla Time ; marked thus ($\frac{3}{4}$). But as the Third ſort of Tripla Time, marked thus ($\frac{3}{8}$) contains but three Quavers in a Bar, of equal length of three Quavers in the ſecond ſort of Tripla Time, the Movement will be ſo quick that it will be beſt to have a Pendulum which will vibrate whole Bars : For which purpoſe the Pendulum muſt be in length about fifty inches and two tenths.

Philo-Muſico.

CAMBRIDGE, SEPT. 26th, 1770.

Notwithſtanding the exactneſs of theſe Rules for keeping Time, yet Authors are ſometimes arbitrary in quickening or ſlackening the Time, by inſerting Muſical Phraſes over particular Strains, ſuch as Adagio, Slow, Grave, &c. Either of theſe ſignify that Strain to be performed ſomewhat Slower than the Mood it is ſet to : So likewiſe when you ſee Allegro, Vivace, Preſto, &c. over any particular Strain, it implies that it muſt be performed ſomething quicker than the Mood that is fixed to it ; but when nothing of this Nature occurs, then obſerve ſtrictly the Rules beforementioned. Before I leave this Subject it may not be amiſs to ſay ſomething with reſpect to Motion in beating Time, and you may take this as infallable that your Hand or Foot muſt always be falling in the firſt Part or Note in a Bar, and riſing in the laſt Part, both in Common Time and Treble Time. In Treble Time there is a Threefold Motion required to beat a Bar, viz. After this Manner, 1ſt, in letting your Hand fall, obſerve that you ſtrike firſt the Ends of your Fingers, 2d, then the Heel of your Hand, and 3dly, raiſe your Hand up which finiſhes the Bar ; be ſure, that you divide theſe Motions into three equal Lengths of Time, not allowing more time to one than another. In that Mood of Time called three to two, this Motion beats Minims, and in three from four it beats Crotchets, and in three from eight it beats Quavers. N. B. One Motion ſerves for all theſe three Treble Time Moods only one quicker than the other, in proportion to the Rule laid down by Pendulums.

* N. B. A Pendulum that is thirty-nine Inches & two tenths of an Inch in length, will vibrate half Bars in $\frac{3}{4}$: A Pendulum that is twenty-two Inches & one twentieth in length vibrates half Bars in $\frac{3}{8}$, conſequently two Vibrations beats one Bar.

Of the Grace of Tranſition.

THIS Grace, called the Grace of Tranſition, if rightly performed, is one of the greateſt Ornaments to Muſic that can be uſed; and in my Opinion, the turning of Thirds up and down, is one of the niceſt Points, and if well done, beautifies the Muſick exceedingly, whether Vocal or Inſtrumental.

N. B. When you ſee three Notes of anyKind with a Figure of 3, they are to be ſung in theTime of oneBeat; that is, if the Time be $\frac{3}{2}$, they are to be ſounded the Length of a Minim; but if the Time be $\frac{3}{4}$, they are to be ſung in the Time of a Crotchet, &c.

Note alſo—That when you meet with two Notes ſtanding one over the other, they are called chooſingNotes, and ſignify that you may ſing which you pleaſe, or both if you have Voices enough, and remember that they add not to the Time, but to the Variety.

CHAP. VII.

Of the ſeveral Keys in Muſick, and how to tranſpoſe any Tune out of either of the two natural Keys, by Flats, or Sharps, into any other Key.

THERE are but two natural primitive Keys in Muſick, viz. C, the ſharp and cheerful Key, and A, the flat and melancholly Key. No Tune can be formed rightly and truly, but in one of theſe two Keys, except the Mi be tranſpoſed by either Flats or Sharps, which are ſet at the Beginning of the five Lines, which brings them to the ſame Effect as the two natural Keys.

Theſe two Keys muſt be rightly underſtood, before any great Proficiency can be made in Muſick; they are very nice Points, and are worth the Learners While to ſtrive for the Attainment of. It is a Proof of a very nice Taſte and Diſcernment in a Choriſter, to chuſe a Flat Key Tune for a Pſalm of Penitence and Prayer; and likewiſe a ſharp KeyTune for a Pſalm of Praiſe and Thankſgiving. But to ſing a Pſalm of Praiſe in a flat Key Tune, and a Pſalm of Prayer in a ſharp Key Tune, would be a direct Contradiction. The Muſick and the Words would greatly tend to leſſen the Beauty of each other. But you muſt endeavour to make the Muſick conform to the Words; then they will ſerve to beautify each other. But next I ſhall proceed to give an Example of the ſeveral Keys, both Natural and Artificial. For Example ſee Pages 6, 7 & 8.

Thus I have given an Example of the ſeveral Keys, both natutal and artificial, into which B. Mi is tranſpos'd; and I would have it be remembered that it is not Flats that make flat Keys, nor Sharps that make ſharp Keys. But it is B. Mi which is always next to the Key Note, either above or below; if below, then it is a ſharp Key, and if above, then it is a flat Key.

Obſerve,

Obſerve, That the laſt Note in the Baſs is the Key Note, and contains the Air of the whole Tune: For a Tune depends as much on its proper Key, as a Sermon does on its Text. Thus much for Keys.

CHAP. VIII.

Of the Doctrine of Concords and Diſcords, both Perfect and Imperfect.

THERE are but four Concords, in Muſic, viz. the Uniſon, Third, Fifth and Sixth, their Eighths or Octaves are alſo meant. The Uniſon is call'd a perfect Chord, the Fifth is alſo call'd a Perfect Chord, the Third and Sixth are call'd Imperfect, their Sounds being not ſo full and Sweet as the Perfect.

The Diſcords are a Second, Fourth and Seventh, and their Octaves. Here take an Example of Concords and Diſcords with their Octaves under them.

	CONCORDS.				DISCORDS.			
	1.	3.	5.	6.	2.	4.	7.	
Their *Octaves*, or *Eighths*—	8	10	12	13	9	11	14	&c.
	15	17	19	20	16	18	21	
	22	24	26	27	23	25	28	

N. B. If a Voice or Inſtrument, could reach to Ten Thouſand Octaves,* they all counted as one in Nature.

* Perhaps there may appear (in the Eyes of ſome) a direct contradiction between this Clauſe and the 8th Page in the *Eſſay on Sound*, where a material Difference is Philoſophically prov'd between a Uniſon and an Octave; but although the Vibrations are as different as that of 2 to 1, yet there is ſo great a Similarity that vulgarly (not ſtrictly) ſpeaking, they are called the ſame. But however, this is a very nice Point, and muſt be left for more Mature Heads to comment upon; and I would not adviſe any who have not had ten or twelve Years Experience in the Science, to perplex themſelves about the Definition of it, for I am poſitive that before they can have a thorough Underſtanding of this Matter, they muſt be very well vers'd in the Theory as well as the Practice.

CHAP. IX.

Thoughts on MUSIC.

IN Order to make good Muſic, there is great Judgment required in dividing the Parts properly, ſo that one ſhall not over-power the other. In moſt Singing Companies I ever heard, the greateſt Failure was in the Baſs, for let the Three upper Parts be Sung by the beſt Voices upon Earth, and after the beſt Manner, yet without a ſufficient Quantity of Baſs, they are no better than a Scream, becauſe the Baſs is the Foundation, and if it be well laid, you may build upon it at Pleaſure. Therefore in order to have good Muſic, there muſt be Three Baſs to one of the upper Parts. So that for Inſtance, ſuppoſe a Company of Forty People, Twenty of them ſhould ſing the Baſs, the other Twenty ſhould be divided according to the Diſcretion of the Company into the upper Parts, ſix or ſeven of the deepeſt Voices ſhould ſing the Ground Baſs, which I have ſet to moſt of the Tunes in the following Work, and have taken Care to ſet it chiefly in the compaſs of the Human Voice, which if well ſung together with the upper Parts, is moſt Majeſtic, and ſo exceeding Grand as to cauſe the Floor to tremble,* as I myſelf have often experienced. Great Care ſhould alſo be taken to Pitch a Tune on or near the Letter it is ſet, though ſometimes it will bear to be ſet a little above and ſometimes a little below the Key, according to the Diſcretion of the Performer; but I would recommend a Pitch Pipe, which will give the Sound even to the nicety of half a Tone.

Much Caution ſhould be uſed in ſinging a Solo, in my Opinion Two or Three at moſt are enough to ſing it well, it ſhould be ſung as Soft as an Eccho, in order to keep the Hearers in an agreeable Suſpenſe till all the Parts join together in a full Chorus, as ſmart and ſtrong as poſſible. Let all Parts cloſe in a proper Key, and a full Organ, which will yield great delight† both to the Performers and Hearers.

Thus gentle Reader you have my Sentiments upon the Matter.

No Doubt they're Faulty, pray excuſe 'em,
If you like 'em, prithee uſe 'em,
Criticks, be Tender, don't abuſe 'em.

Your's,

W. B.

* All Notes that deſcend below G Gamut in the Baſs, occaſion an agreeable Tremor. But in my Opinion double D, viz. (an Octave below the Middle Line of the Baſs) is the moſt commanding and Majeſtick of any Sound in Nature. N. B. Blowing a Note carries it an Octave below itſelf, ſo as to make D blow'd as low as double D not blow'd, &c.

† Such is thy Force, O Harmony Divine!
Such the Effect thou haſt upon the Ear!
That all are forc'd to liſten to thy Charms,
In pleaſing Extacy and fond Amaze.

On

On MUSICK.

HAIL ſacred Muſic, which of all the Sweets
From Heaven deriv'd for Man to taſte, art chief.
In all the various Frames of Man, 'tis thine
To move the various Paſſions of the Soul.
When Pain uſurps the Empire of the Breaſt,
Thy ſoothing Balſam can aſſuage the Sting,
And pour the Balm of Pleaſure on the Wound.
When Grief and Cares hang heavy o'er the Mind,
And gloomy Melancholy clogs the Thought,
Thy enliv'ning Beams can diſſipate the Cloud,
And warm the Soul with rapturous Delight.
When Paſſion rages over all the Man,
'Tis thine to calm the Tempeſt of the Mind,
And ſoften all the Hero into Love.
Again 'tis thine to call the Lover forth,
From the ſoft Scenes of Pleaſure and Amour,
To brave the Dangers of the bloody War.
The Savage owns thy almoſt magic Power,
To Tame the Native Wildneſs of his Breaſt,
And melt the icy Fibres of his Heart.
Again the Lion raging for his Prey,
When Muſick meets him on his rapid Courſe,
Struck into Pauſe, let's drop his Fury there,
In fond Attention to the pleaſing Charm.
Such is the Nature of the vital Clay,
Such the Formation of its curious Parts,
That all the nicer Paſſions of the Man,
And every coarſer Inſtinct of the Brute,
Are ſweetly ſubject to the Powers of Sound.

Cambridge, Sept. 30, 1770. Philo-Muſico.

To all Muſical Practitioners.

PERHAPS it may be expected by ſome, that I ſhould ſay ſomething concerning Rules for Compoſition; to theſe I anſwer that *Nature is the beſt Dictator*, for all the hard dry ſtudied Rules that ever was preſcribed, will not enable any Perſon to form an Air any more than the bare Knowledge of the four and twenty Letters, and ſtrict Grammatical Rules will qualify a Scholar for compoſing a Piece of Poetry, or properly adjuſting a Tragedy, without a Genius. It muſt be Nature, Nature muſt lay the Foundation, Nature muſt inſpire the Thought. But perhaps ſome may think I mean and intend to throw Art intirely out of the Queſtion, I anſwer by no Means, for the more Art is diſplay'd, the more Nature is decorated. And in ſome ſorts of Compoſition, there is dry Study requir'd, and Art very requiſite. For inſtance, in a *Fuge*, where the Parts come in after each other, with the ſame Notes; but even there, Art is ſubſervient to Genius, for Fancy goes firſt, and ſtrikes out the Work roughly, and Art comes after, and poliſhes it over. But to return to my Text; I have read ſeveral Author's Rules on Compoſition, and find the ſtricteſt of them make ſome Exceptions, as thus, they ſay that two Eighths or two Fifths may not be taken together riſing or falling, unleſs one be Major and the other Minor; but rather than ſpoil the Air, they will allow that Breach to be made, and this allowance gives great Latitude to young Compoſers, for they may always make that Plea, and ſay, if I am not allow'd to tranſgreſs the Rules of Compoſition, I ſhall certainly ſpoil the Air, and Croſs the Strain, that fancy dictated: And indeed this is without diſpute, a very juſt Plea, for I

am

am ſure I have often and ſenſibly felt the diſagreeable and ſlaviſh Effects of ſuch a reſtraint as is here pointed out, and ſo I believe has every Compoſer of Poetry, as well as Muſick, for I preſume there are as ſtrict Rules for Poetry, as for Muſick. But as I have often heard of a Poetical Licence, I don't ſee why with the ſame Propriety there may not be a Muſical Licence, for Poetry and Muſic are in cloſe Connection, and nearly allied, beſides they are often aſſiſtants to each other; and like true friends often hide each others failings: For I have known a Piece of Poetry that had neither "*Rhime nor Reaſon*"* in it, paſs for tolerable good Senſe, becauſe it happened to be ſet to an excellent Piece of Muſick, and ſo get reſpect rather for its good fortune in falling into ſuch reſpectable Company than for any Merit in itſelf; ſo likewiſe I have known and heard a very indifferent Tune often ſung, and much careſs'd, only becauſe it was ſet to a fine Piece of Poetry, without which recommendation, perhaps it would not be ſung twice over by one Perſon, and would be deem'd to be dearly bo't only at the expence of Breath requiſite to perform it—for my own Part, as I don't think myſelf confin'd to any Rules for Compoſition laid down by any that went before me, neither ſhould I think (were I to pretend to lay down Rules) that any who came after me were any ways obligated to adhere to them, any further than they ſhould think proper: So in fact, I think it is beſt for every *Compoſer* to be his own *Carver*. Therefore, upon this Conſideration, for me to dictate, or pretend to preſcribe Rules of this Nature for others, would not only be very unneceſſary, but alſo a great Piece of Vanity.

* A ſimple Fellow bro't a Piece of Proſe to Sir *Thomas Moore* for his Inſpection; Sir *Thomas* told him to put it into Rhime, accordingly he did; upon which Sir *Thomas* ſaid to him, now it is *Rhime*; but before it was neither *Rhime nor Reaſon*.

CHAP. X.

Containing an Explanation of the moſt Uſeful Terms that are us'd in Muſick; particularly of thoſe that are in this Book, ſet down in Alphabetical Order.

ADAGIO—very ſlow or the ſloweſt Movement of Time.
Allegro—a very quick Movement, being as quick again as *Adagio*.
Affetuoſo—very Tender and Affectionate.
Allelujah—PRAISE THE LORD.
Altus—The Counter.
Breve—a Note containing two Semibreves
Baſs—The loweſt foundational Part & generally confin'd to the F Cliff.
Binary—up, and down, both equal.
Cliff—the Key to open a Piece of Muſick.
Cadence—All Parts making a Cloſe.
Canon—A perpetual Fuge.
Chant—to ſing, alſo the Church Tune.
Chorus—all Parts moving together.
Cloſe—all Parts ending in Harmony.
Counter-Tenor—between Treble and Tenor may be ſet in the C or G Cliff.
Da-Capo—End with the firſt Strain.
Demi—The Half.
Diapaſon—a perfect Eighth.
Diſdiapaſon—a Fifteenth.
Divoto—in a devout Manner.
Dux—the leading Fuge or Part.
Doubles—all Notes that deſcend below Gamut, viz. the lower line in the Baſs, are called Doubles; as double F, double E, double D, double C, double B, double A, double G; and all below double G, are called double double; as double double F, &c.
Eccho—ſoft like an Eccho.
Encore—over again more yet, the ſame as Repeat.

Forte

Forte—Loud, Strong.
F, faut—in the Baſs one whole Tone below G ſolreut in the Tenor.
Fortiſſimo—very loud.
Fin—The laſt or finiſhing Note.
Fuge or Fuging—Notes flying after of the ſame. N. B. Fuging is accounted the moſt ingenious and generally the moſt grateful both to Performers and Auditors, of any Part in Compoſition.
Granda—very grand or the greateſt.
Gratioſo—graceful and agreeable.
Guida—the leading Voice or Inſtrument.
Gravaſonus—very grave and ſolid.
Harmonick Sounds—Sounds agreeable.
Hemi—The Half.
Hallelujah—Praiſe ye the Lord.
In harmonical—Sounds diſagreeable.
Ledger Lines, viz.—Lines that run above or below the five Lines.
Lamantatone—Lamenting and Grave.
Large—a Note containing two Longs.
Long—a Note containing two Breves.
Languiſſiant—in a languiſhing Manner.
Largo—a Middle Movement of Time, being half way between Adagio and Allegro.
Muſico-Theorico—a Compoſer, a Maſter or Teacher of Muſick.
Medius—The Counter Part or Treble, ſung an Octave below itſelf with a Tenor Voice. *Major*—The greater.
Maeſtuſo—With Majeſty and Grandeur.
Minor—The Leſſer.
Moderatio—Of a moderate ſtrength.
Nota-Bene—Mark well.
Octave—A perfect Eighth of 12 Semitones.
Oſcillation—A vibrating or ſwinging.
Organo—The Organ Part.
Organ—The grandeſt of all Wind Inſtruments.
Piano—Soft and ſweet like an Eccho.
Preſto—Quick.
Pieno—Full, or altogether.
Philo-Muſico—A lover of Muſick.
Quarta—Four Parts in Score.
Rectre & Rectro—Forwards & Backwards.
Replica—Let it be repeated.
Semi—the Half.
Score—All Parts ſtanding Bar againſt Bar, according to the ſtricteſt Rules. N. B. Muſick out of Score, ſaid to be like Tune without Time.
Semitonick—The Octave divided into 12 Sounds.
Solo or *Solus*—Either Part alone.
Syncopation—Sounds driven thro' the Bars.
Treble—The 3d Octave above the Baſs, adapted to Feminine Voices in either Sex, cannot with Propriety be ſet in any other but the G Cliff. Obſerve that G ſolreut in the Treble is an Octave above G ſolreut in the Tenor Mathematically prov'd in page 2.
Tacet—Silence.
Tenderment—In a tender Manner.
Tranſpoſition—Removing from one Key to another.
Tre or *Trio*—Three Parts.
Tritone—A greater 3d of 4 Semitones.
Tripla—Time moving or meaſured by Threes.
Tenor—The ſecond Octave above the Baſs, alſo the leading or Church Part, and may be ſet in the C or G Cliff, if in the latter it muſt be ſung an Eighth below the Treble, ſee page 2.
Tutt or *Tute*—All Voices together.
Uniſon—One and the ſame Sound.
Vivace—Gay, quick and lively.
Veloce—Very quick.
Vivaciſſimo—With Life and Spirit.
Vibration—Shaking or Trembling.
Vigoroſo—With Life and Vigour.
Voce Solo—A Solo to be performed by a ſingle Voice.

N. B. Theſe are the moſt general Terms us'd in Muſick, therefore moſt beneficial for Learners.

P. S. Muſick Pens for drawing the 5 Lines at once, made & ſold by *Joſiah Flagg*, at his Shop in Fiſh-Street, at the North-End of *Boſton*.
(Price 50s. Old Tenor.)

ADVERTISEMENT. To the generous Subſcribers for this Book.

THE Author having to his great Loſs deferred the Publication of theſe Sheets for Eighteen Months, to have them put upon American Paper, hopes the Delay will be pardoned; and the good Ladies, Heads of the Families, into whoſe Hands they may fall, will zealouſly endeavour to furniſh the Paper Mills with all the Fragments of Linnen they can poſſibly afford: Paper being the Vehicle of Literature, and Literature the Spring and Security of human Happineſs.

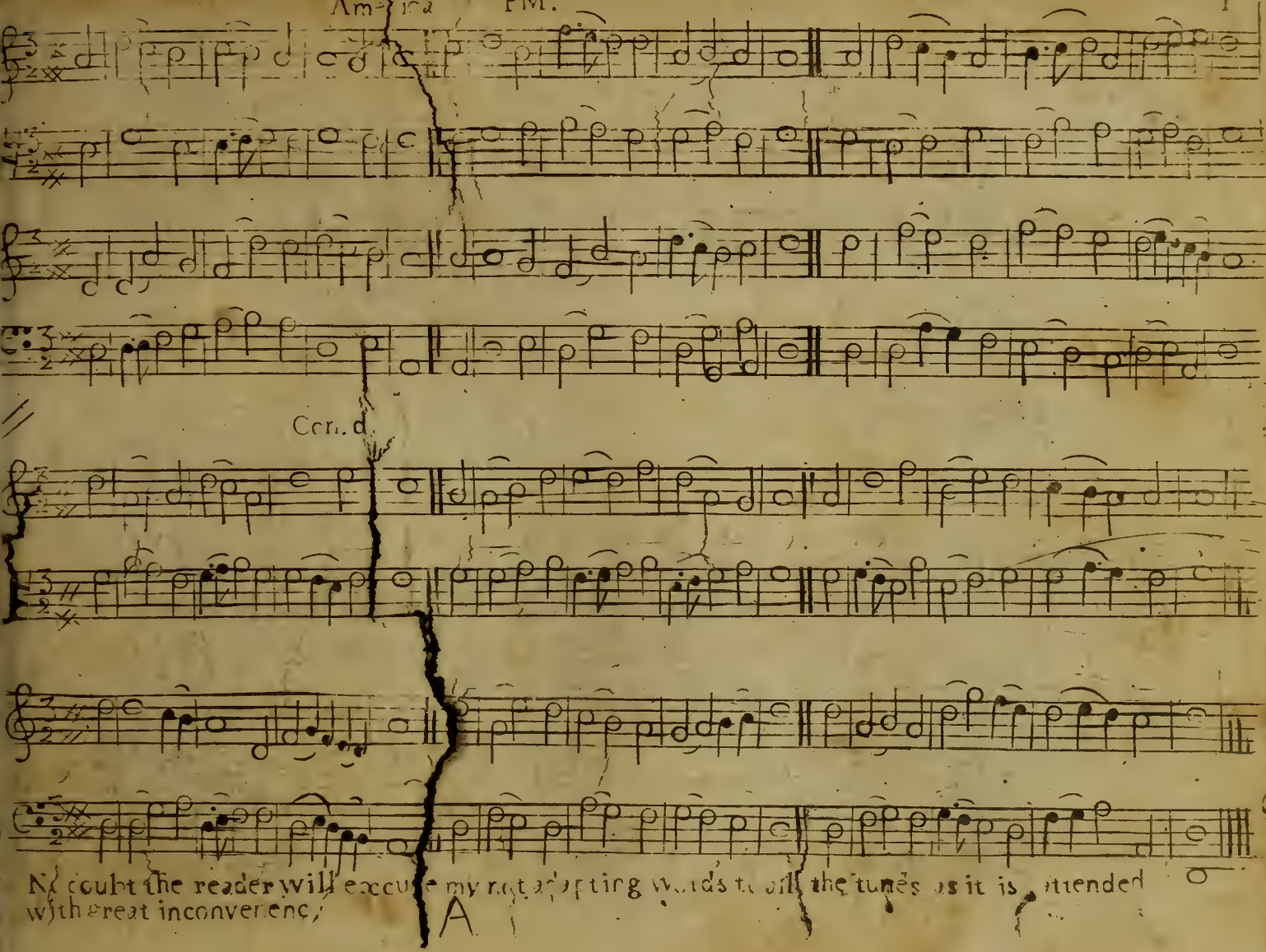
New-England Hymn, by the Rev. Dr. Byles.

[*Adapted to America Tune.*]

TO Thee the tuneful Anthem ſoars,
To Thee, our Father's God, and our's;
This Wilderneſs we choſe our Seat:
To Rights ſecur'd by Equal Laws,
From Perſecution's Iron Claws,
We here have ſought our calm Retreat.

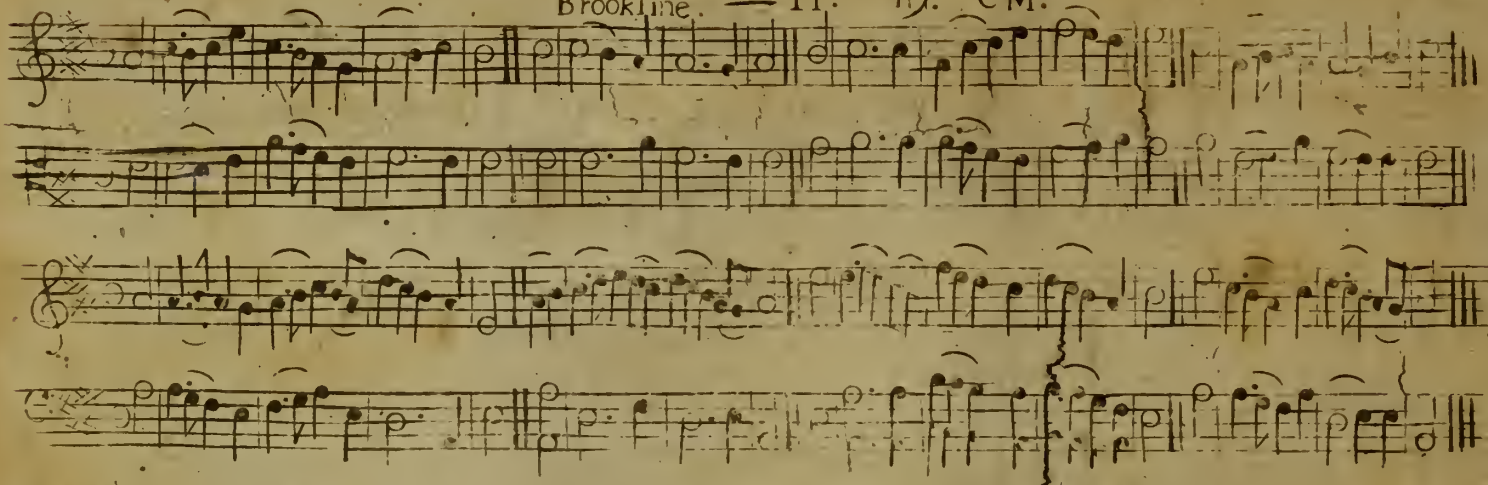
See! how the Flocks of JESUS riſe!
See! how the Face of Paradiſe
Blooms thro' the Thickets of the Wild!
Here Liberty erects her Throne;
Here Plenty pours her Treaſures down;
Peace ſmiles, as Heav'nly Cherubs mild.

Lord, guard thy Favours; Lord, extend
Where farther Weſtern Suns deſcend;
Nor Southern Seas the Bleſſings bound;
'Till Freedom lift her chearful Head,
'Till pure Religion onward ſpread,
And beaming, wrap the Globe around.

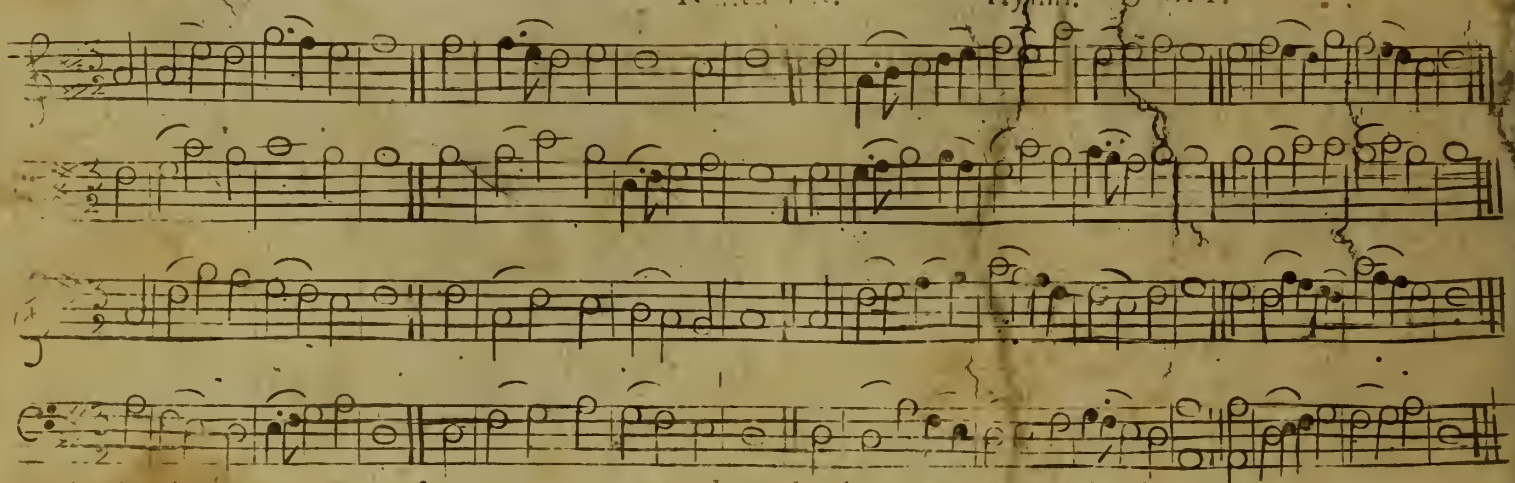


No doubt the reader will excuse my not adopting words to all the tunes as it is intended with great inconvenienc,

Brookline. — Pf. D. C.M.

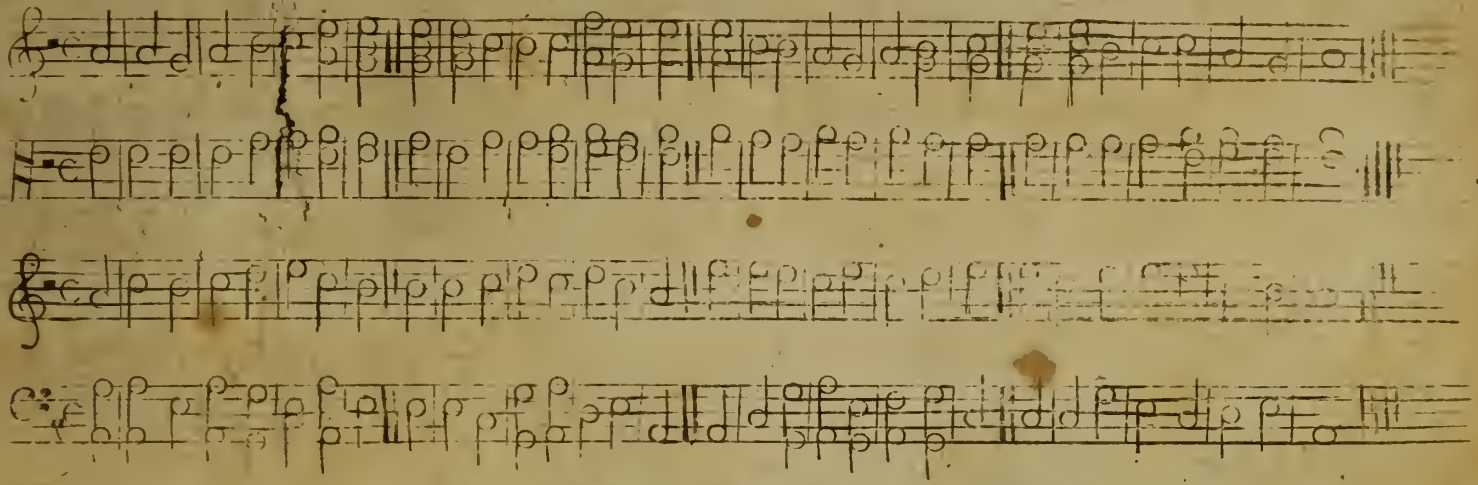


Hymn. 6 S.M.

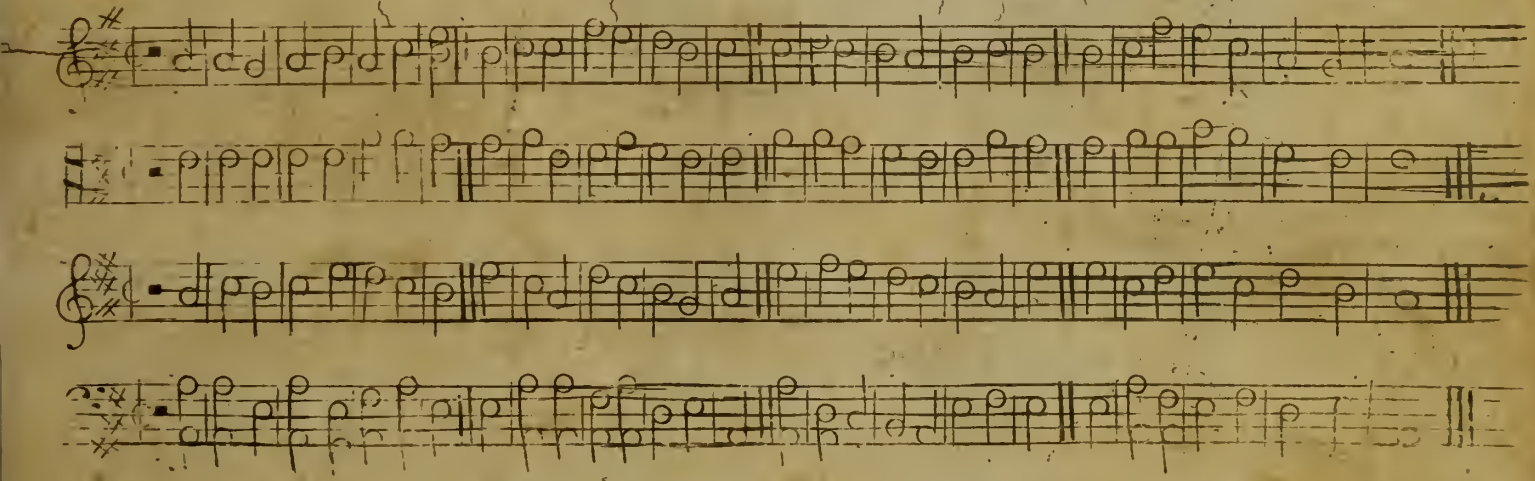


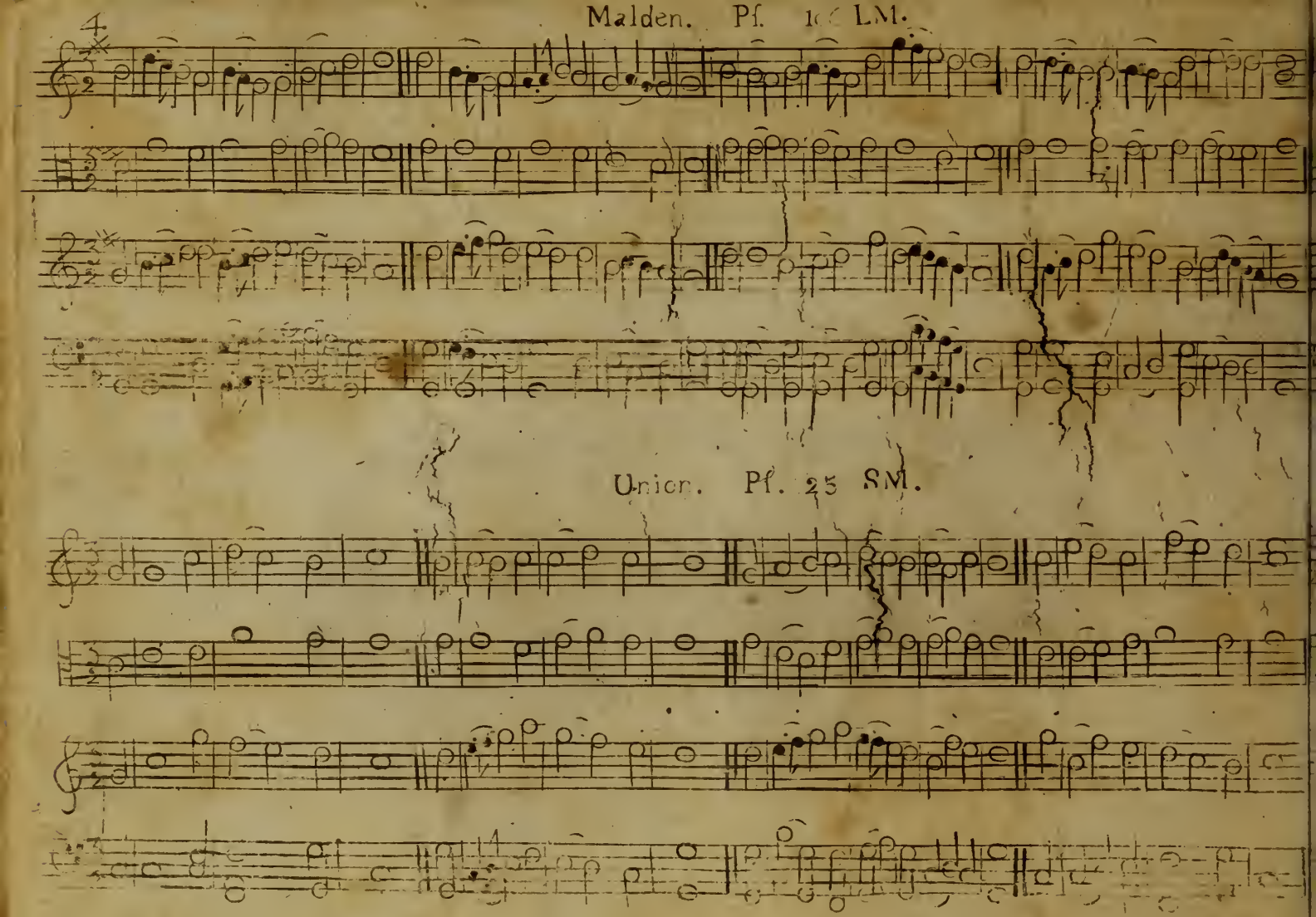
NB I have put C.M. for common metre L.M. for long metre S.M. for short metre
P.M. for Particular metre

Hampshire LM

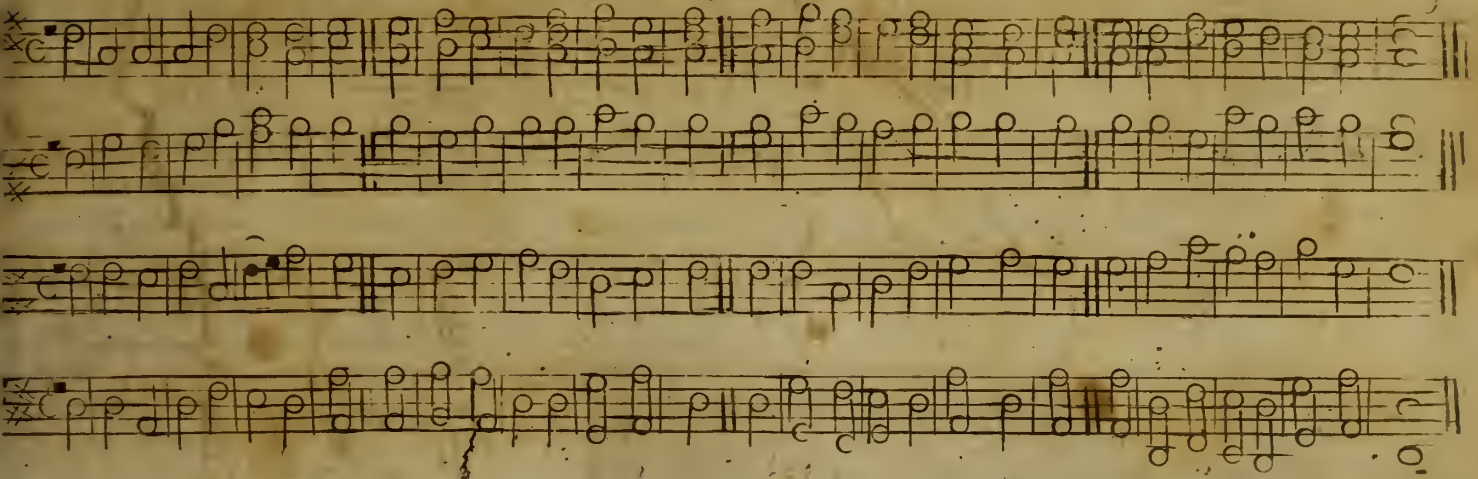


New Town. LM.

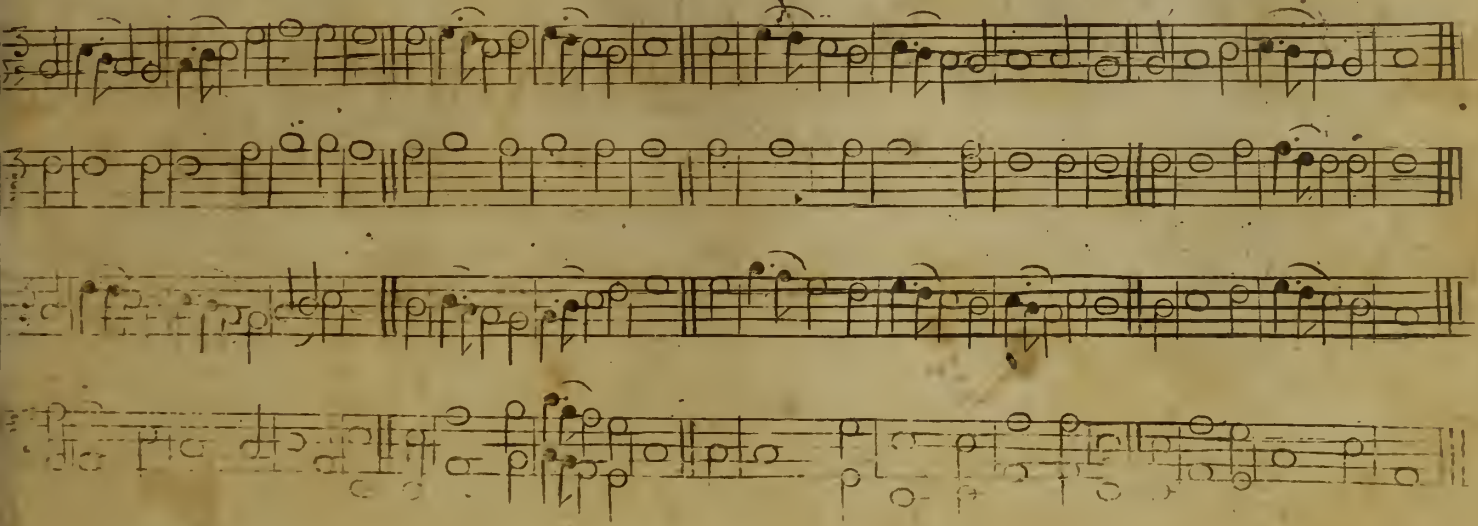



Malden. Pf. 1(LM.
Union. Pf. 25 SM.

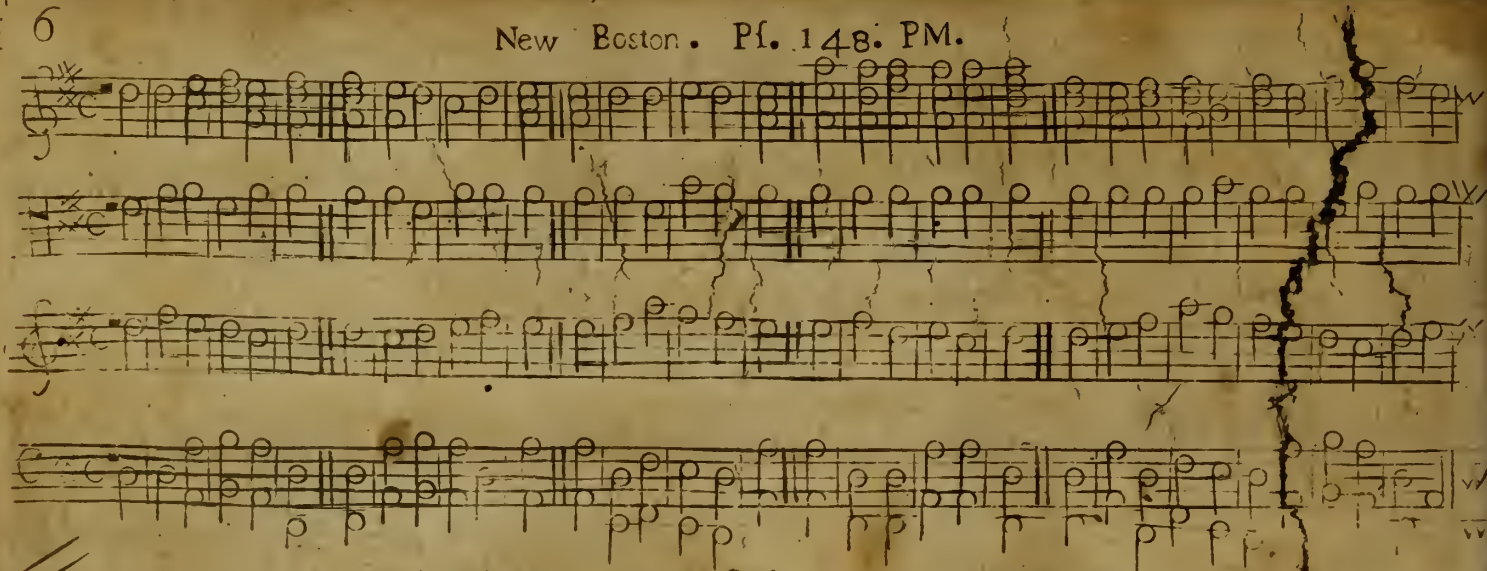
Pembroke Hymn. 17 LM.



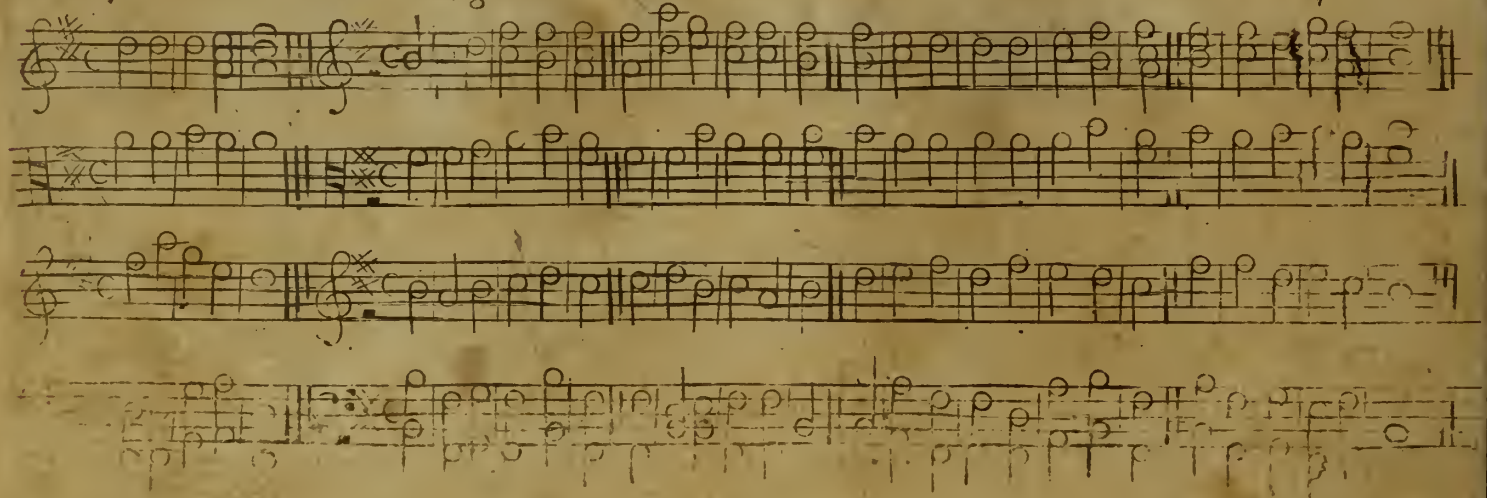
CONCORD. Pf. CM.



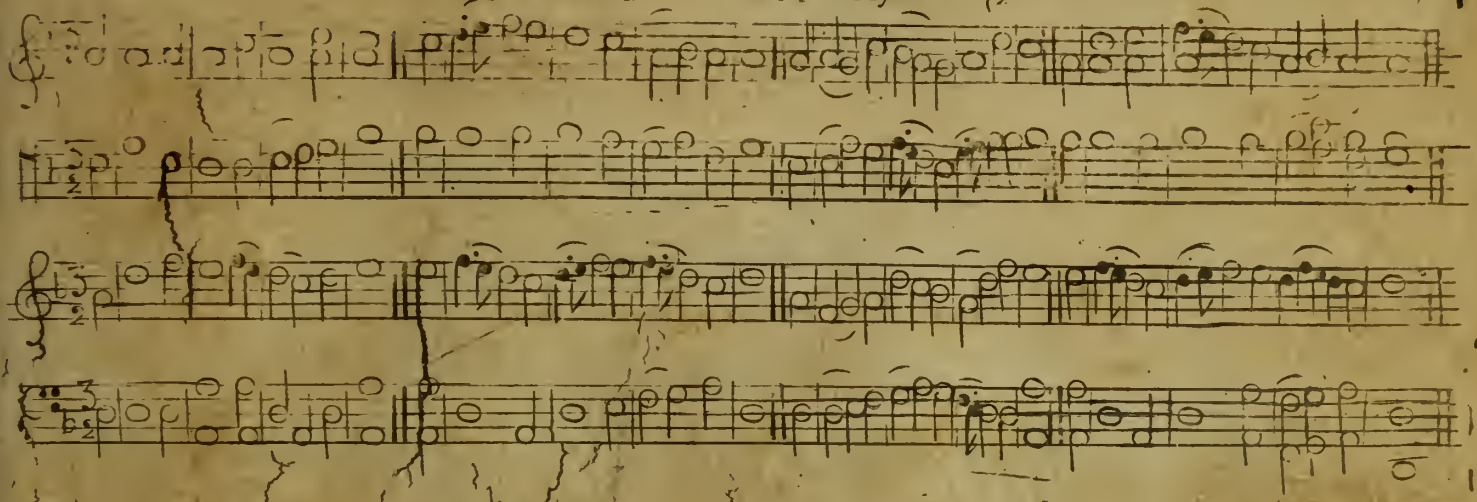
New Boston. Pf. 148. PM.



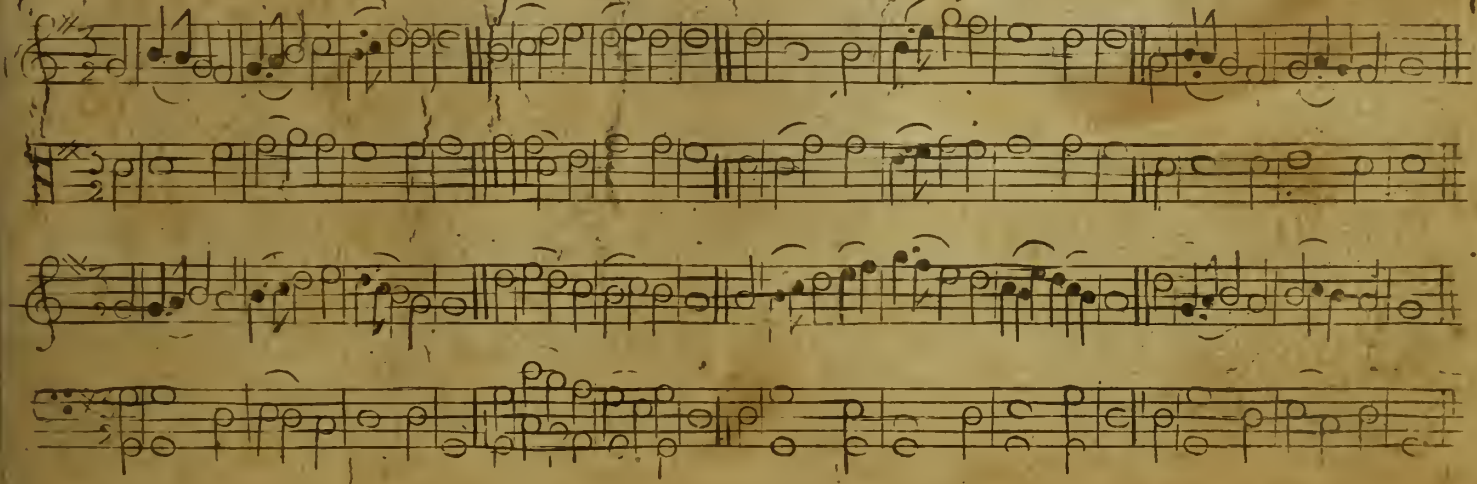
Hingham. SM.



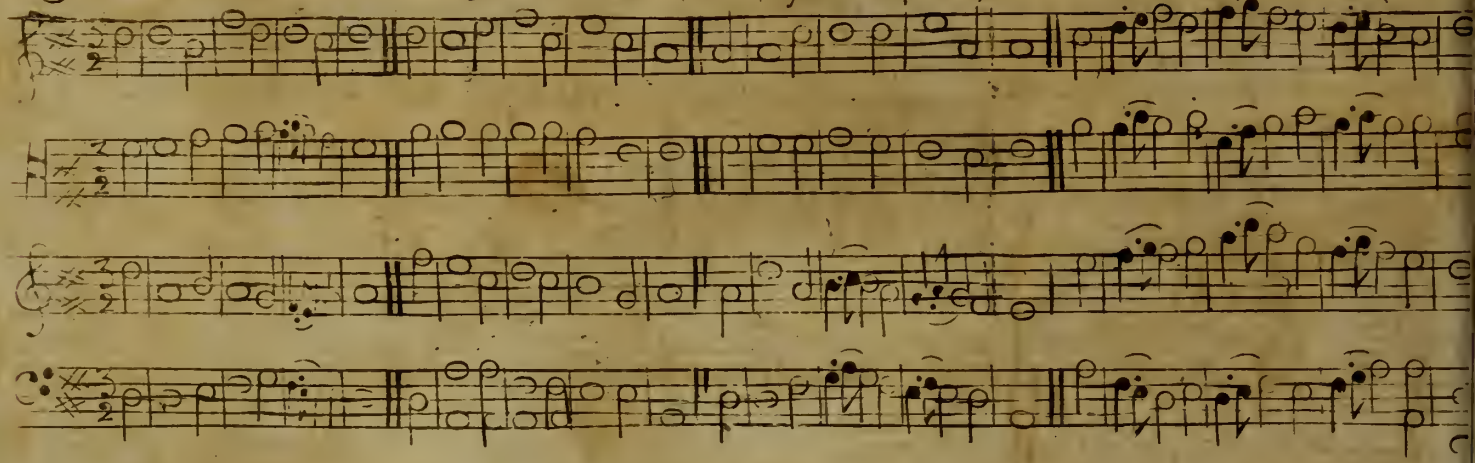
Rockfield. I.M Hymn. 7s d



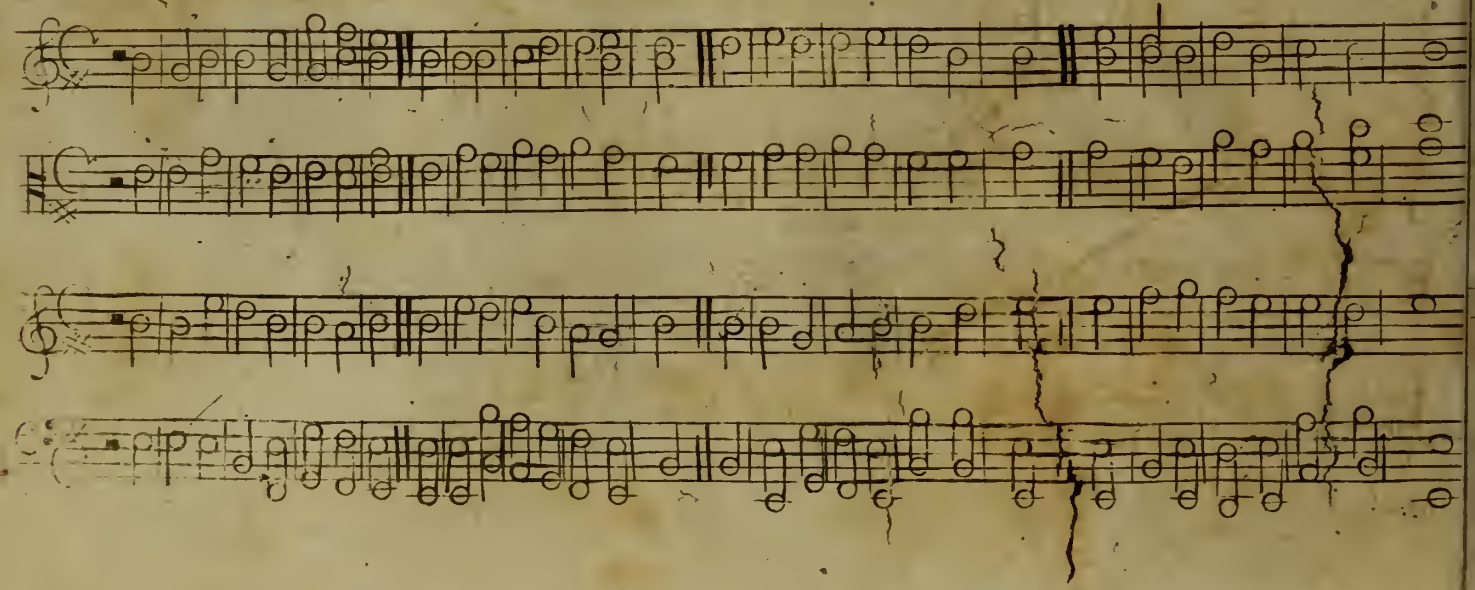
Pomfret. CM. Pf 9s



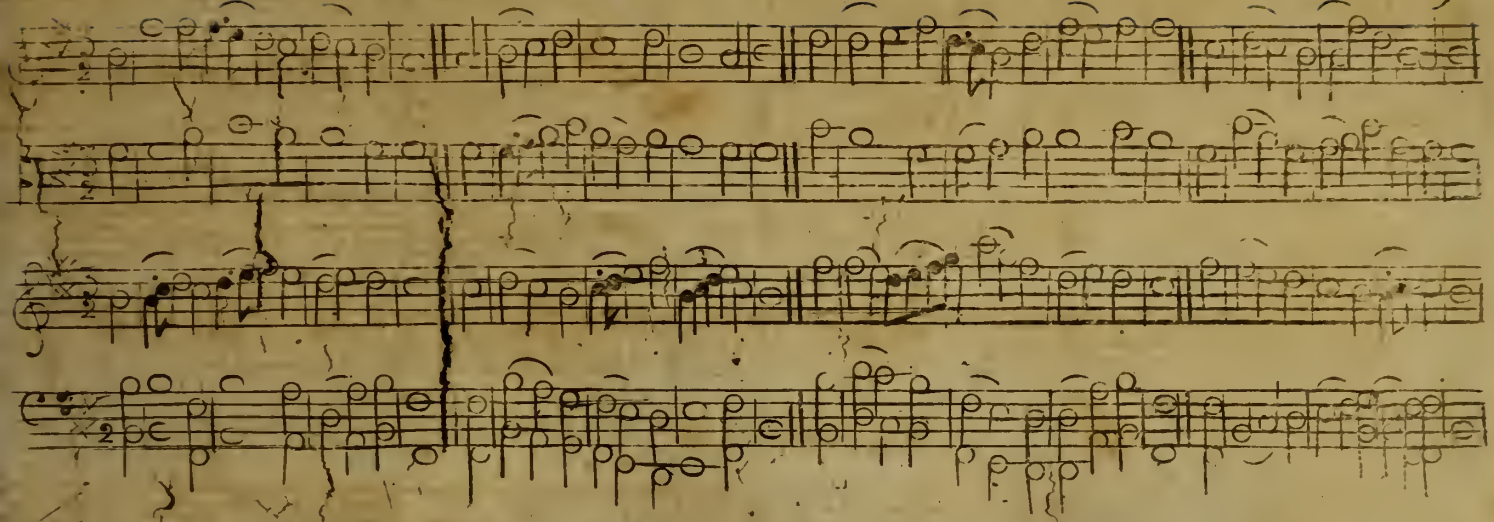
St Elisha's Hymn. 14 LM.



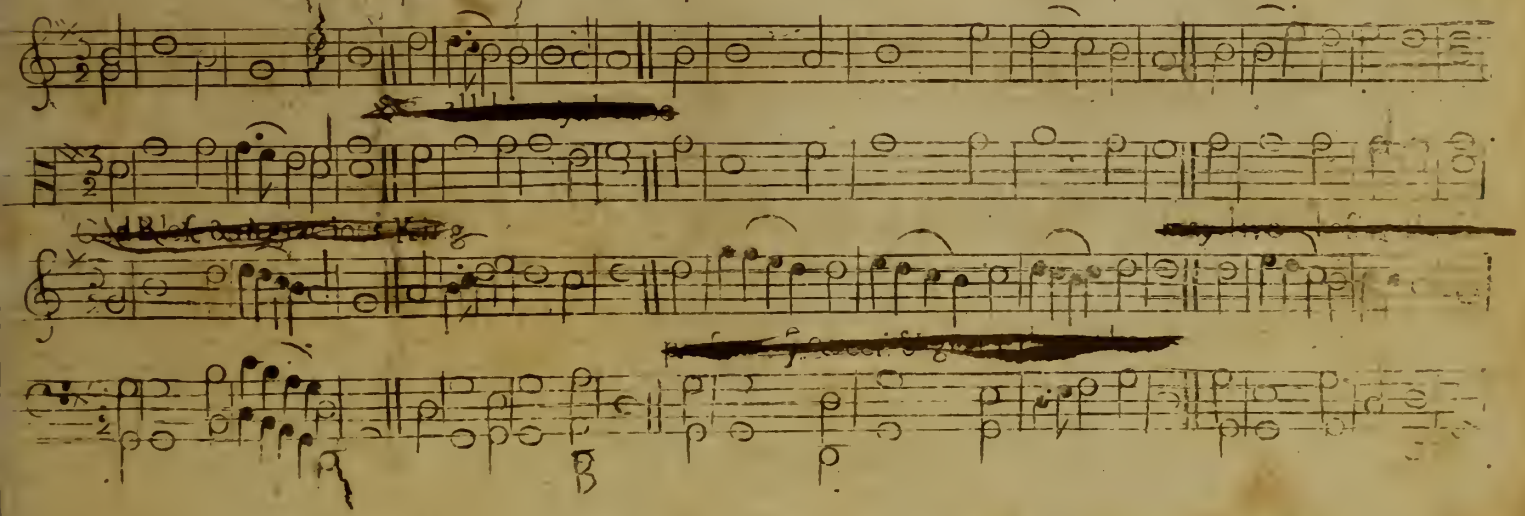
Duxborough. LM.

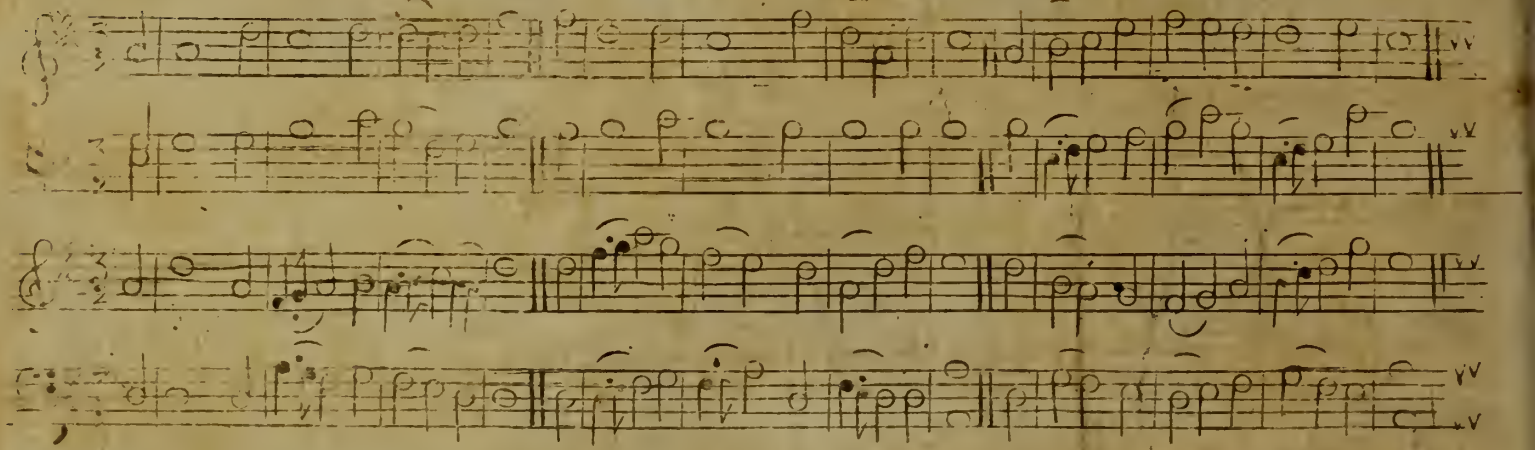


Scituate. LM.



Liberty. S M.





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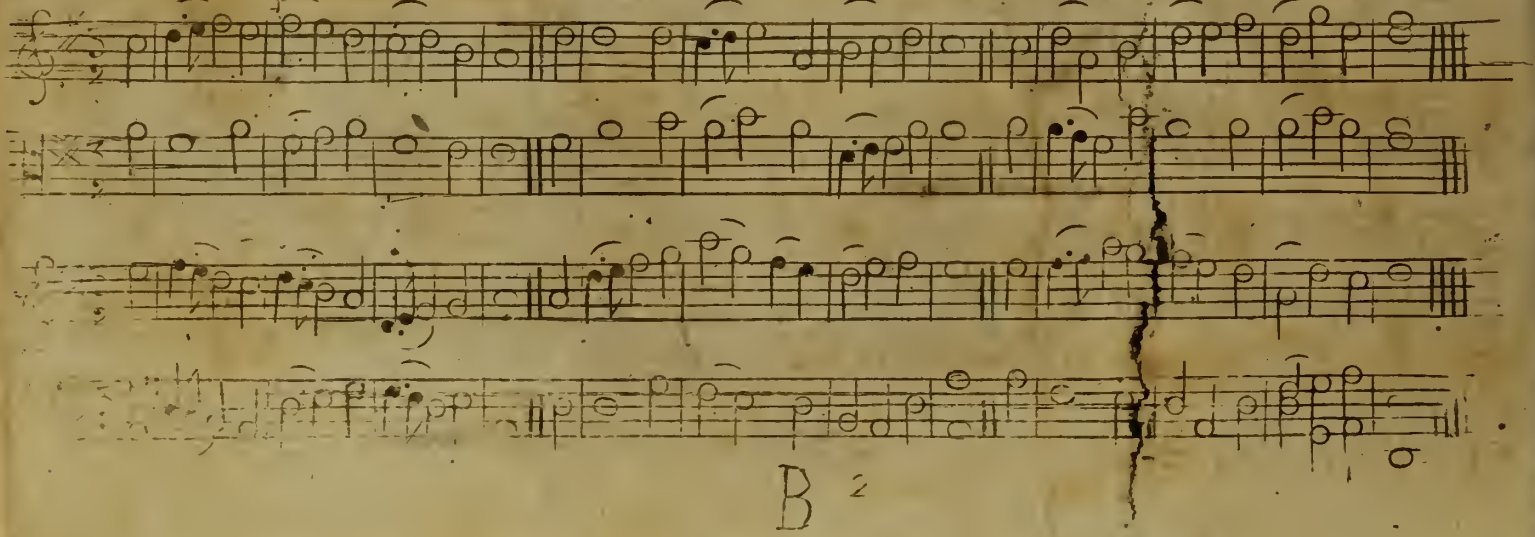

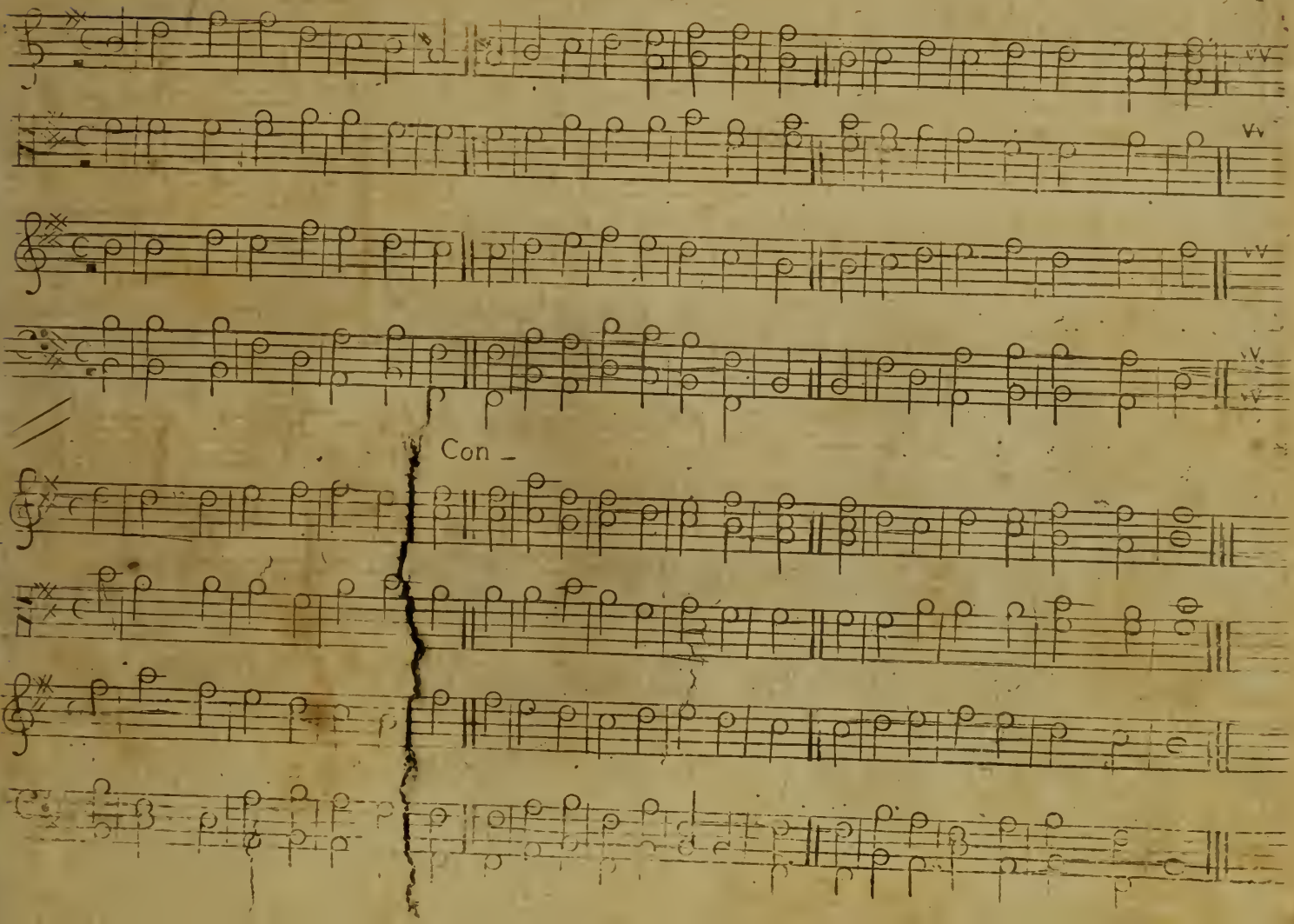
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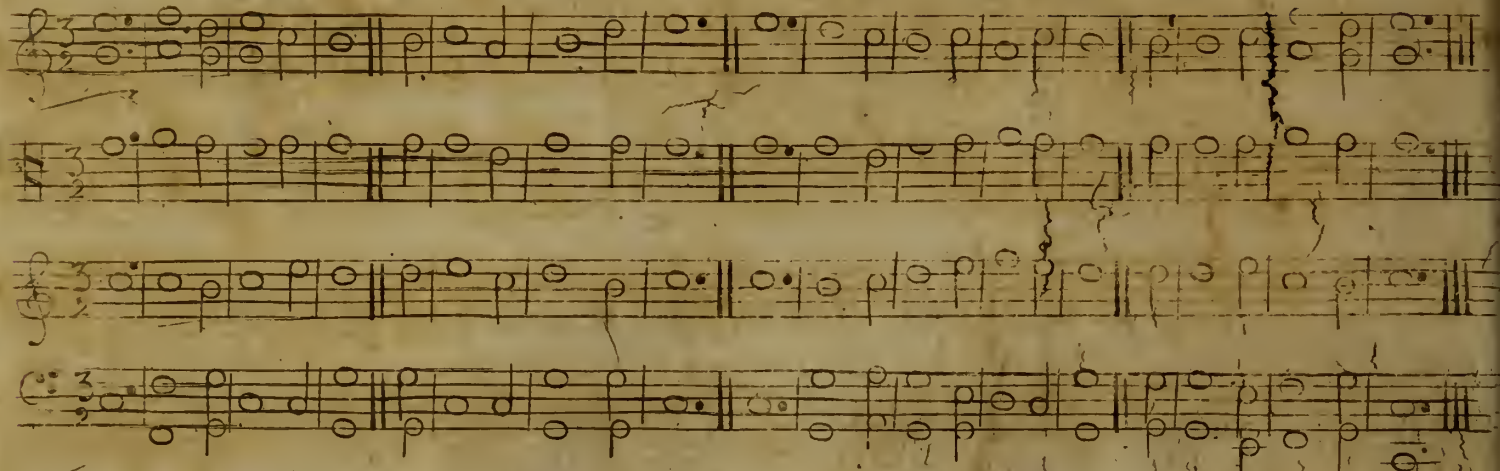
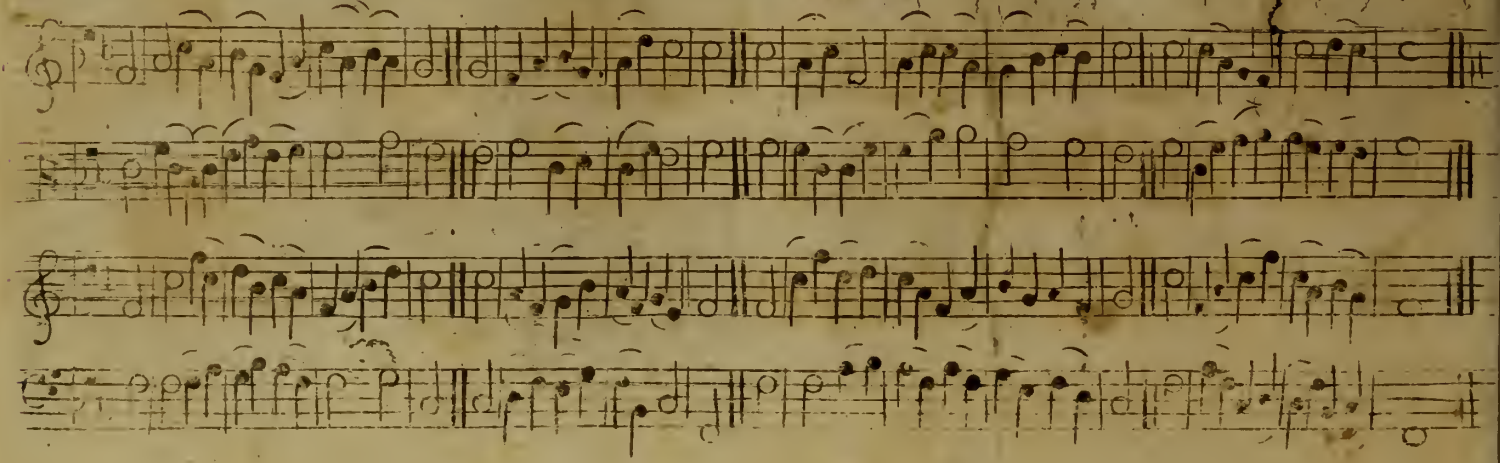
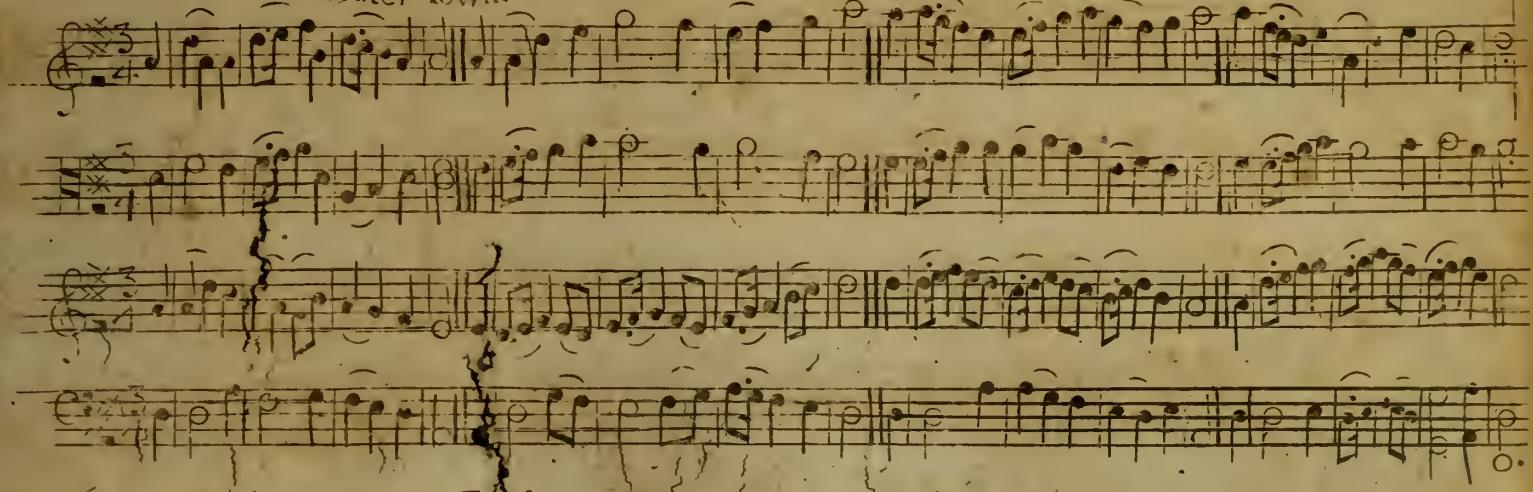
New. South. SM.



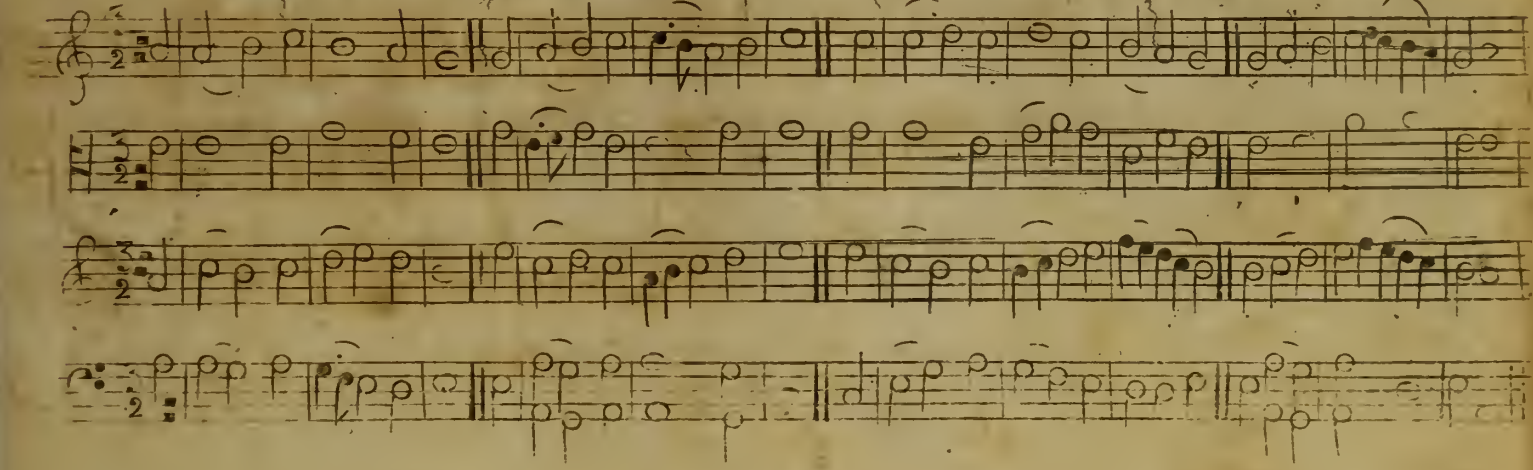
Sudbury. CM.



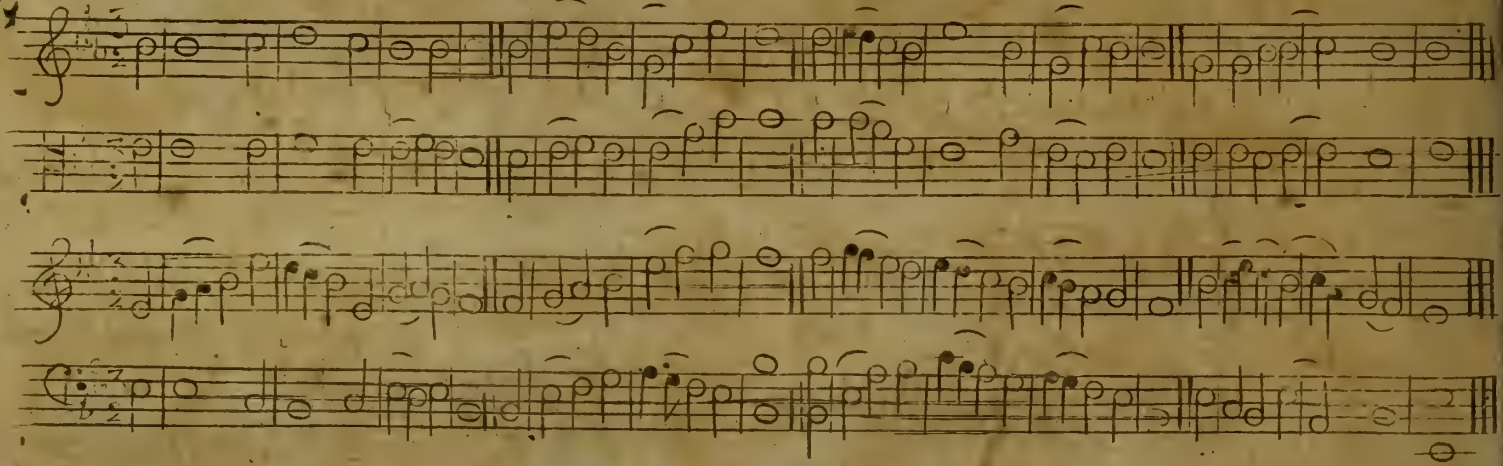
Water Town. LM.



Fairfield. SM.



Africa. C M.



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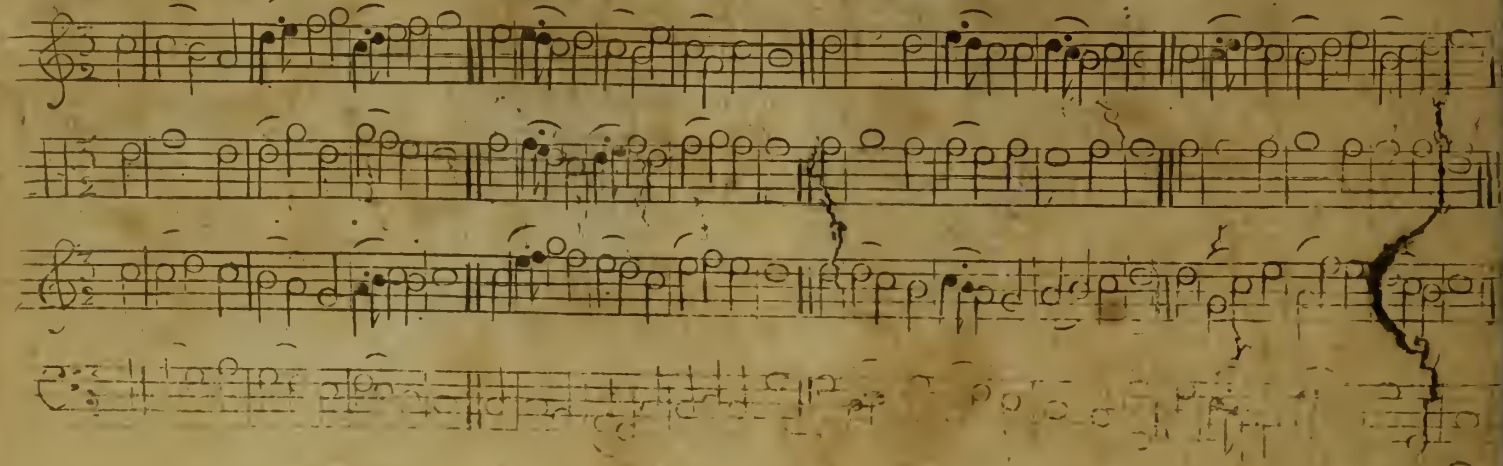

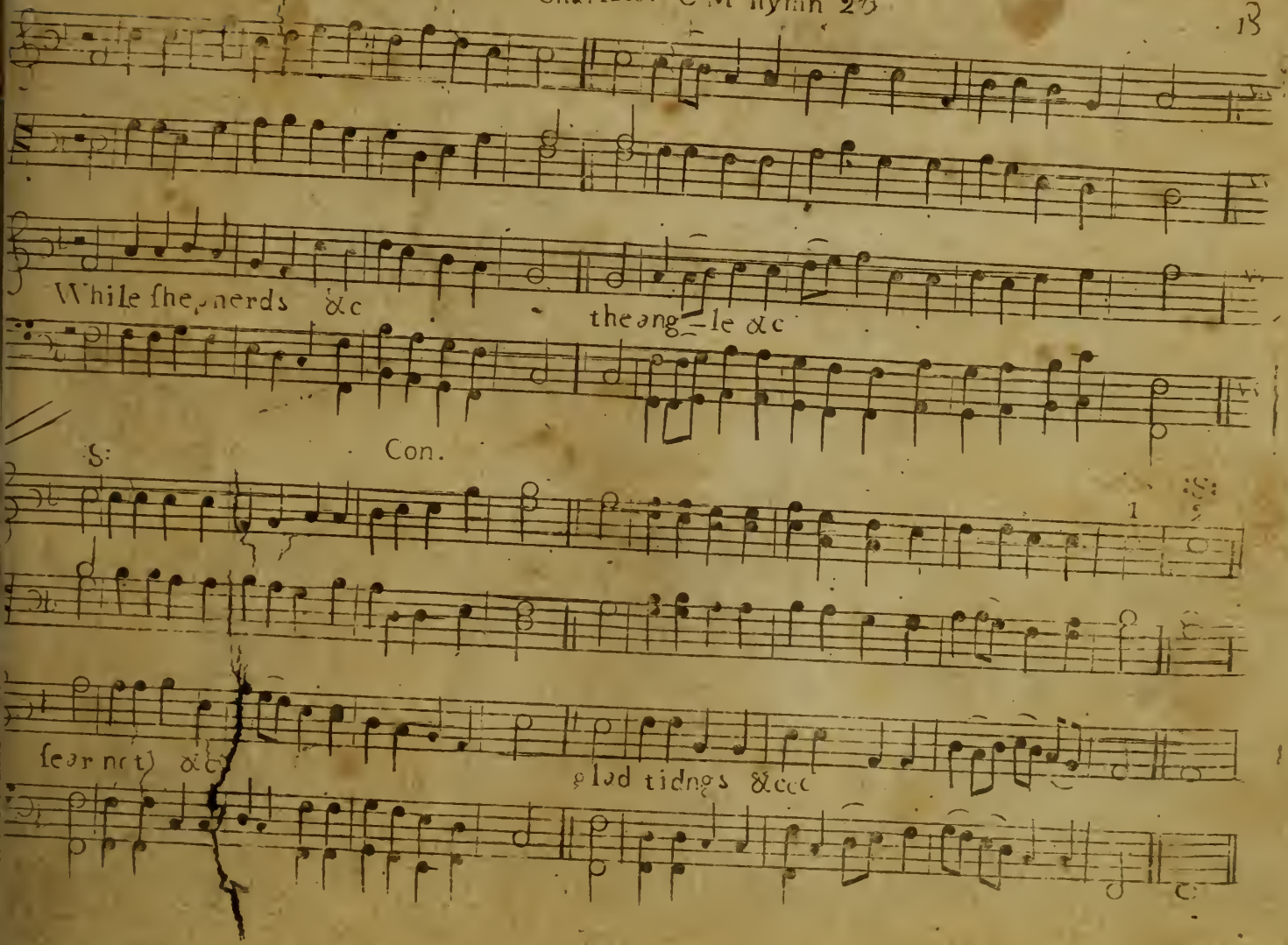
While shepherds &c
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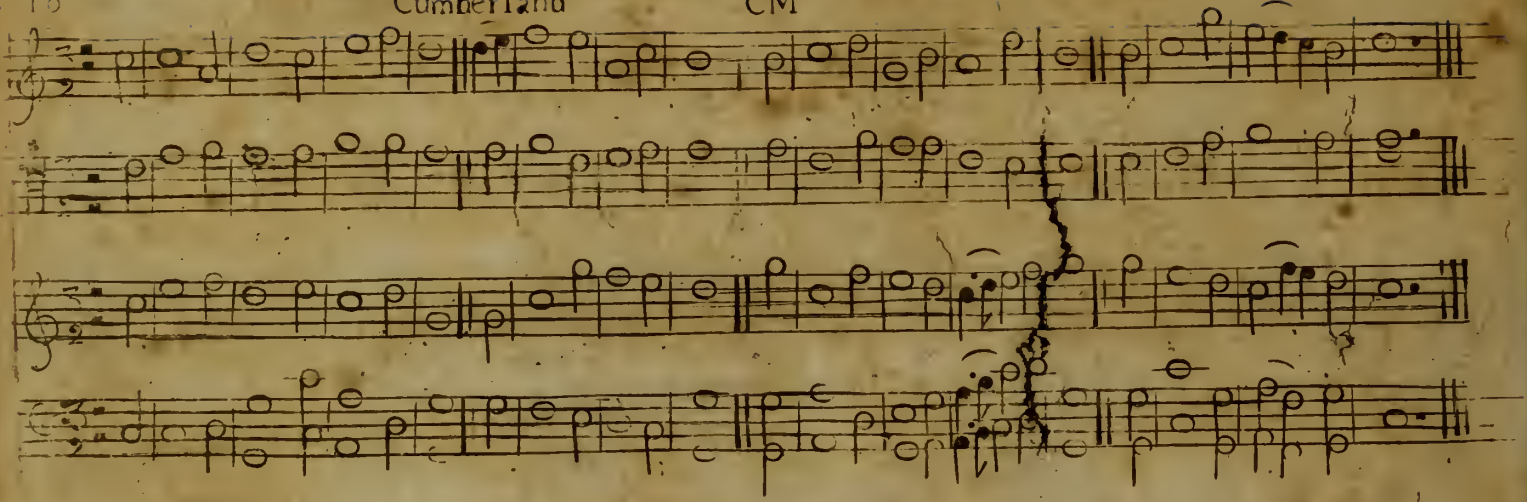
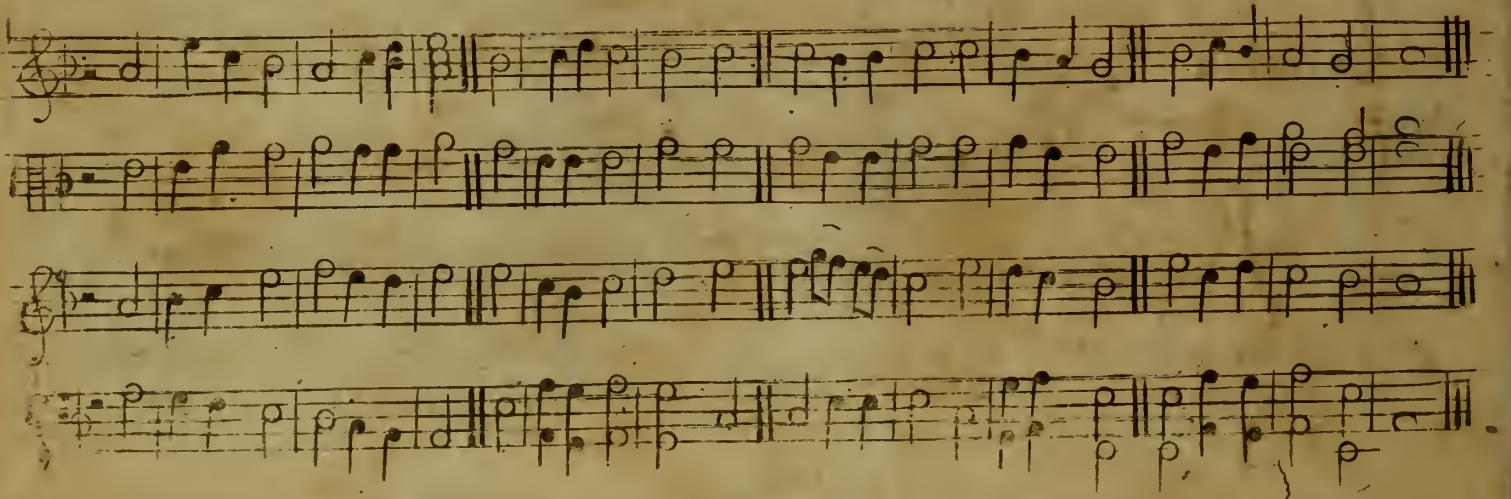
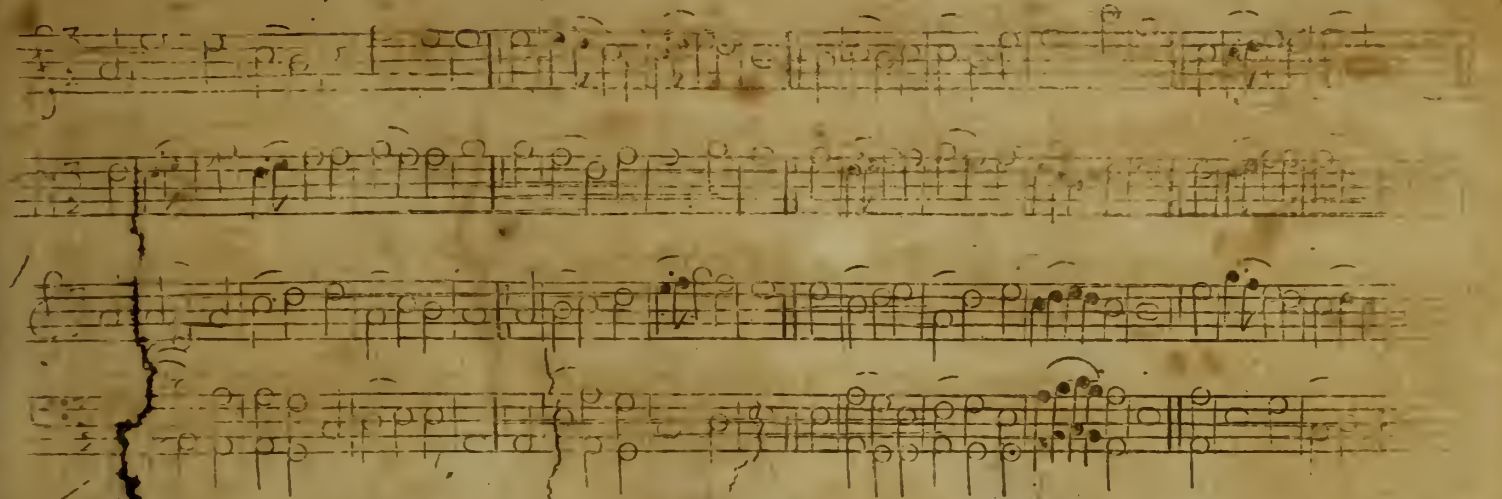
fear not &c
glad tidings &ccc
C:

Cumberland CM

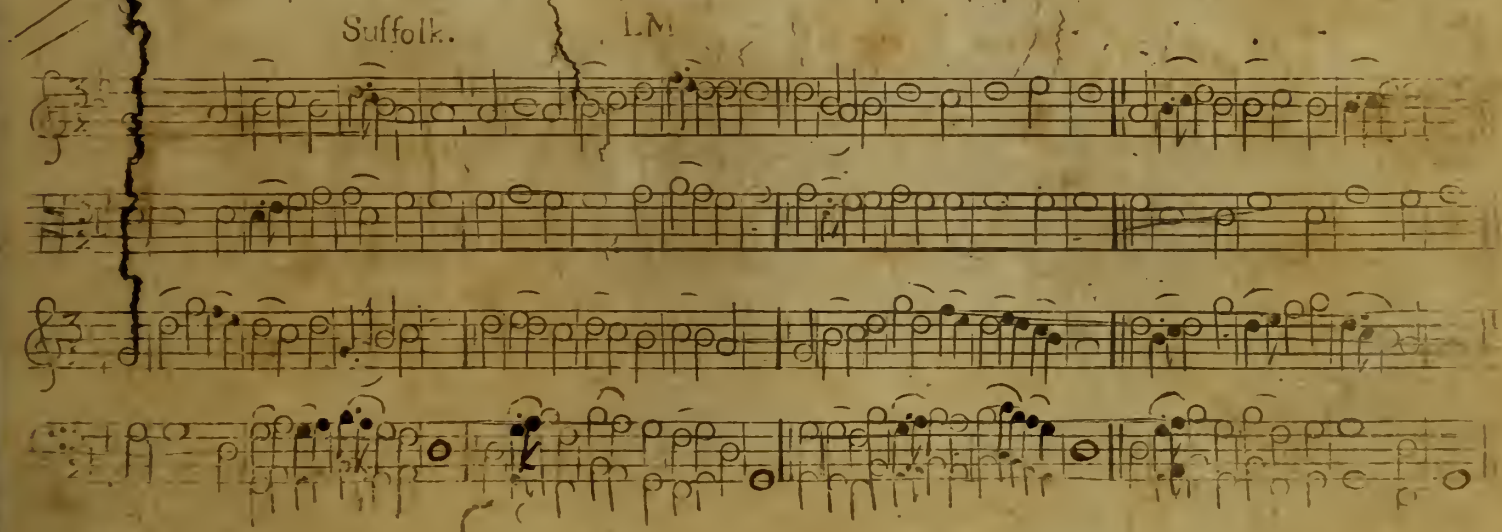


North River. CM.

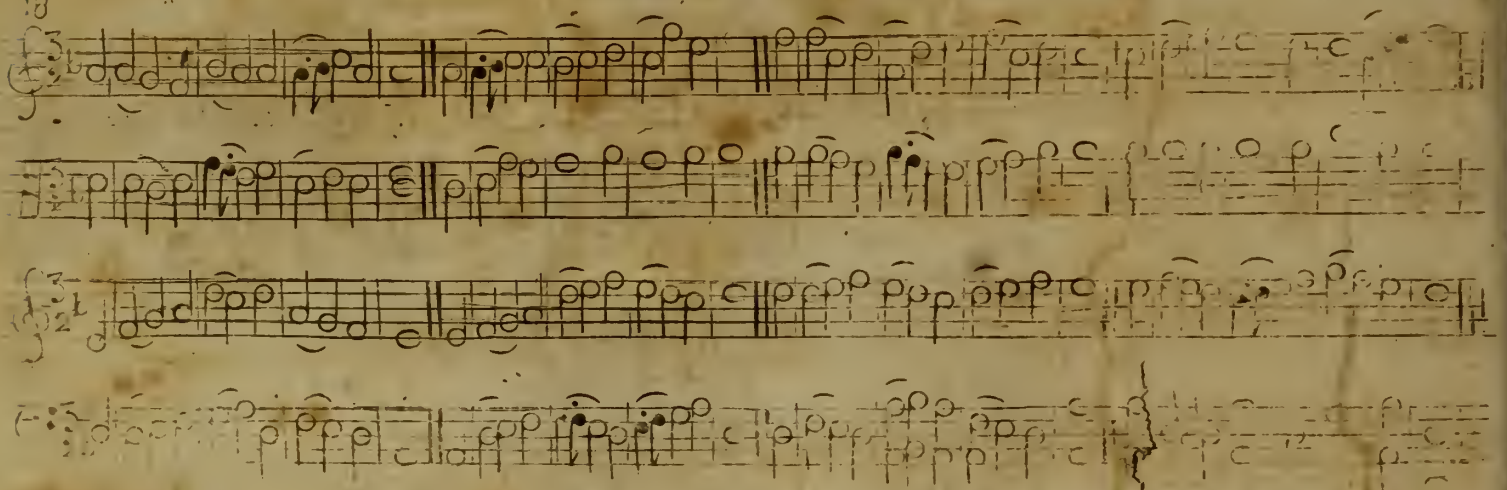




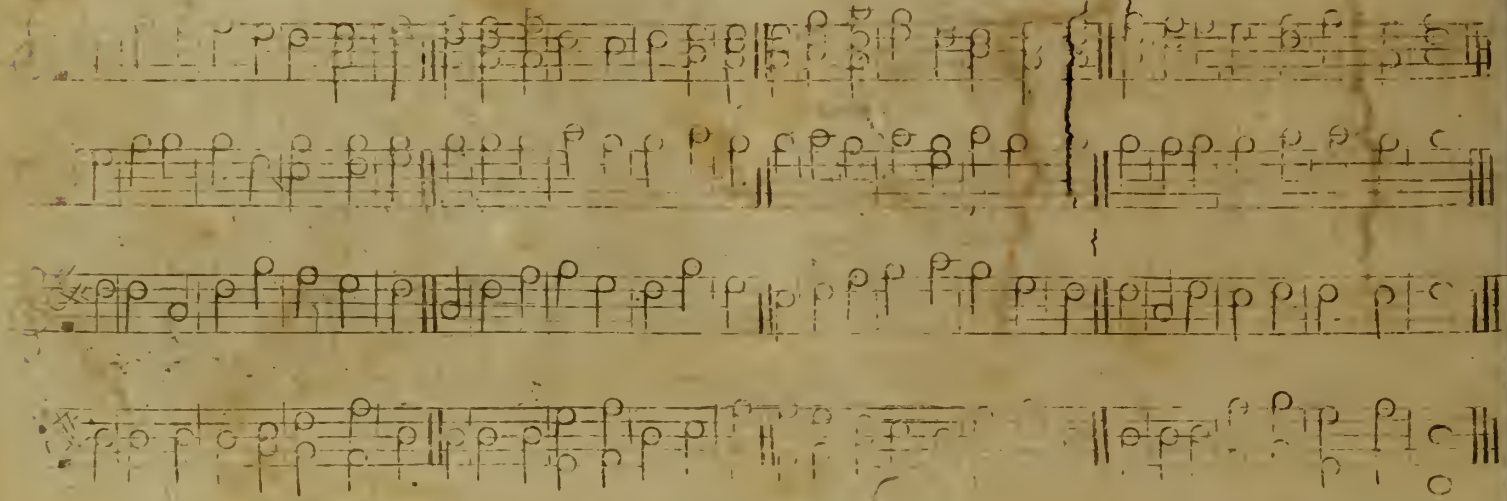
Suffolk. L.M.

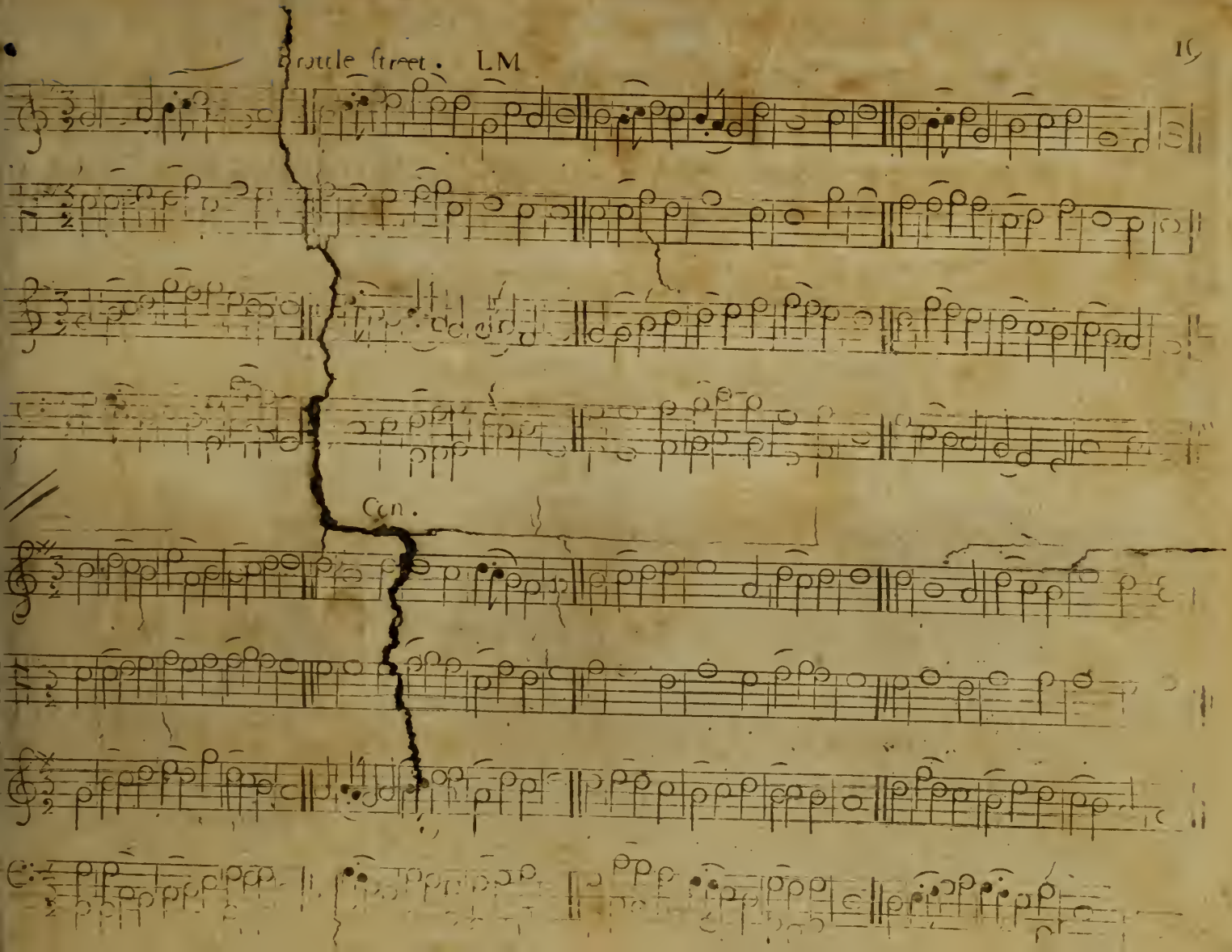


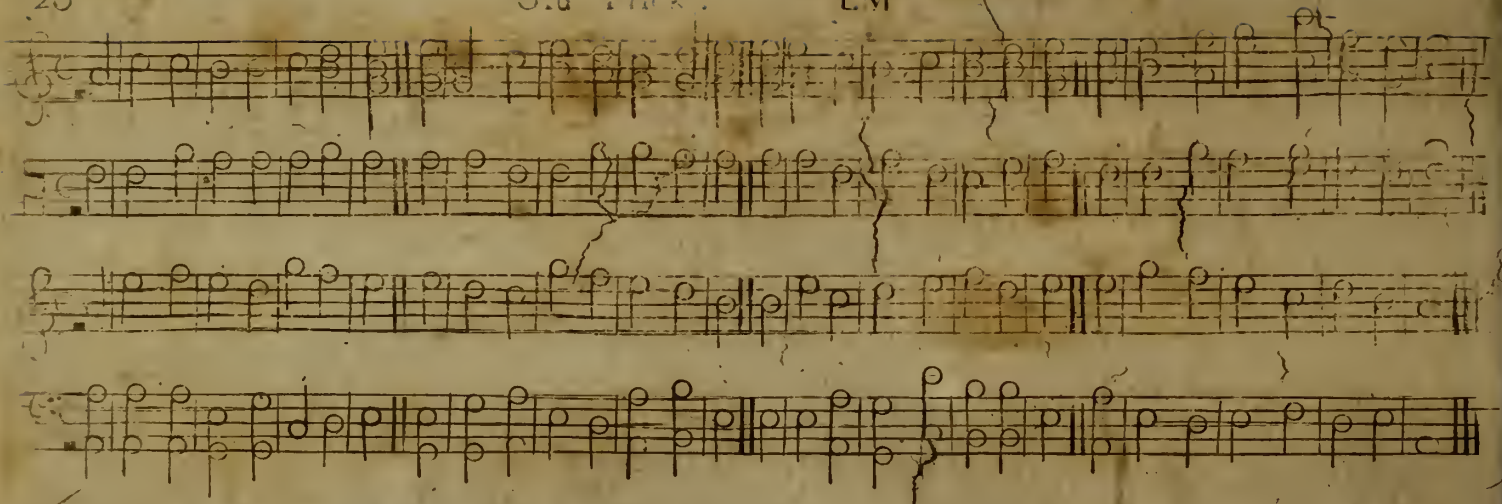
Wh-ellers Point. LM.



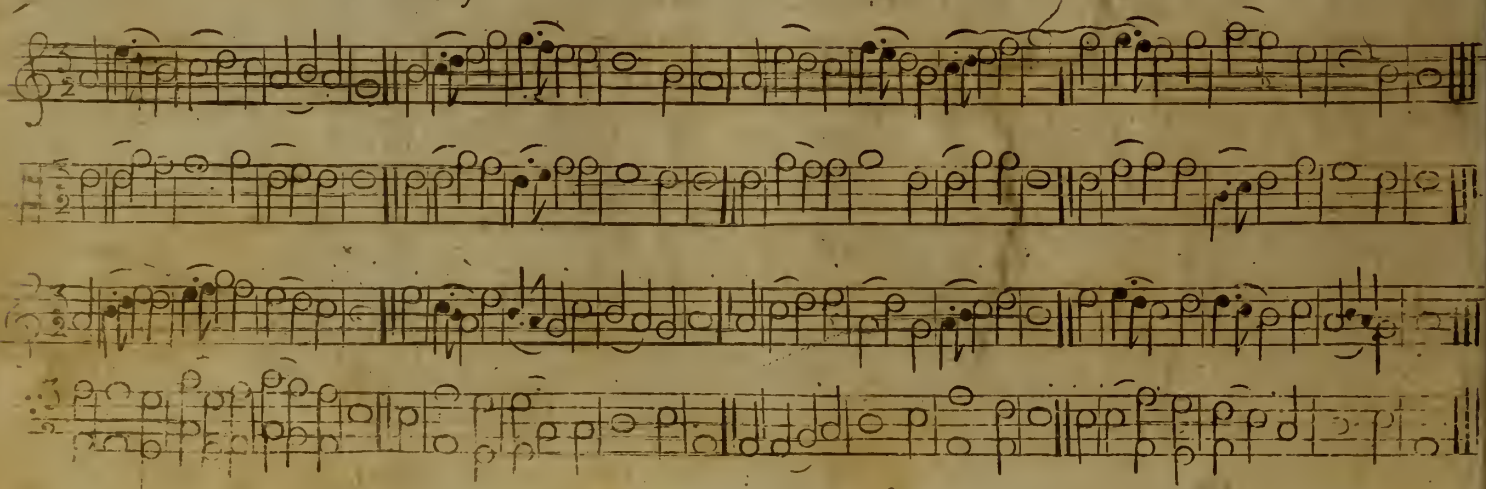
Unity. LM.



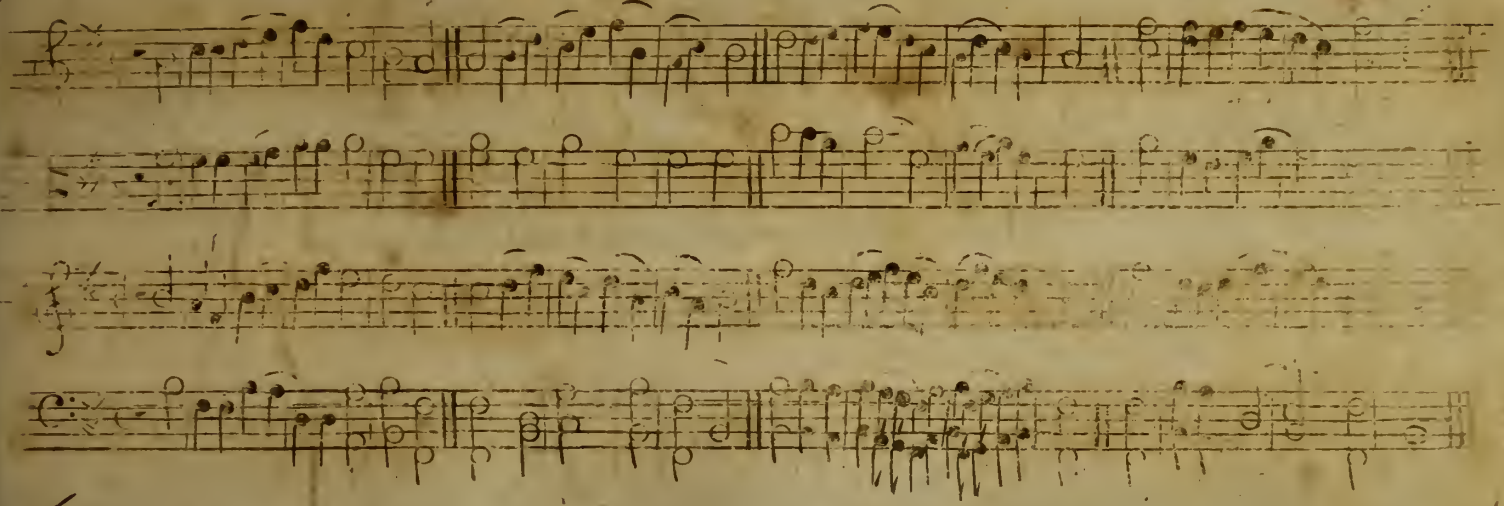

Con.



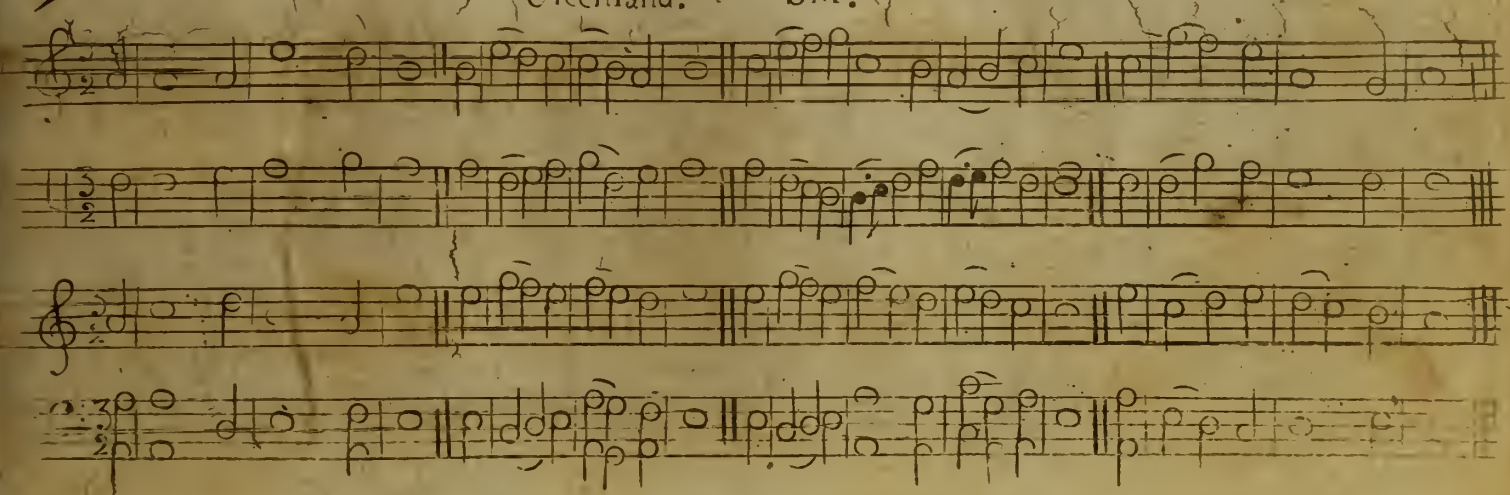
Roxbury. LM



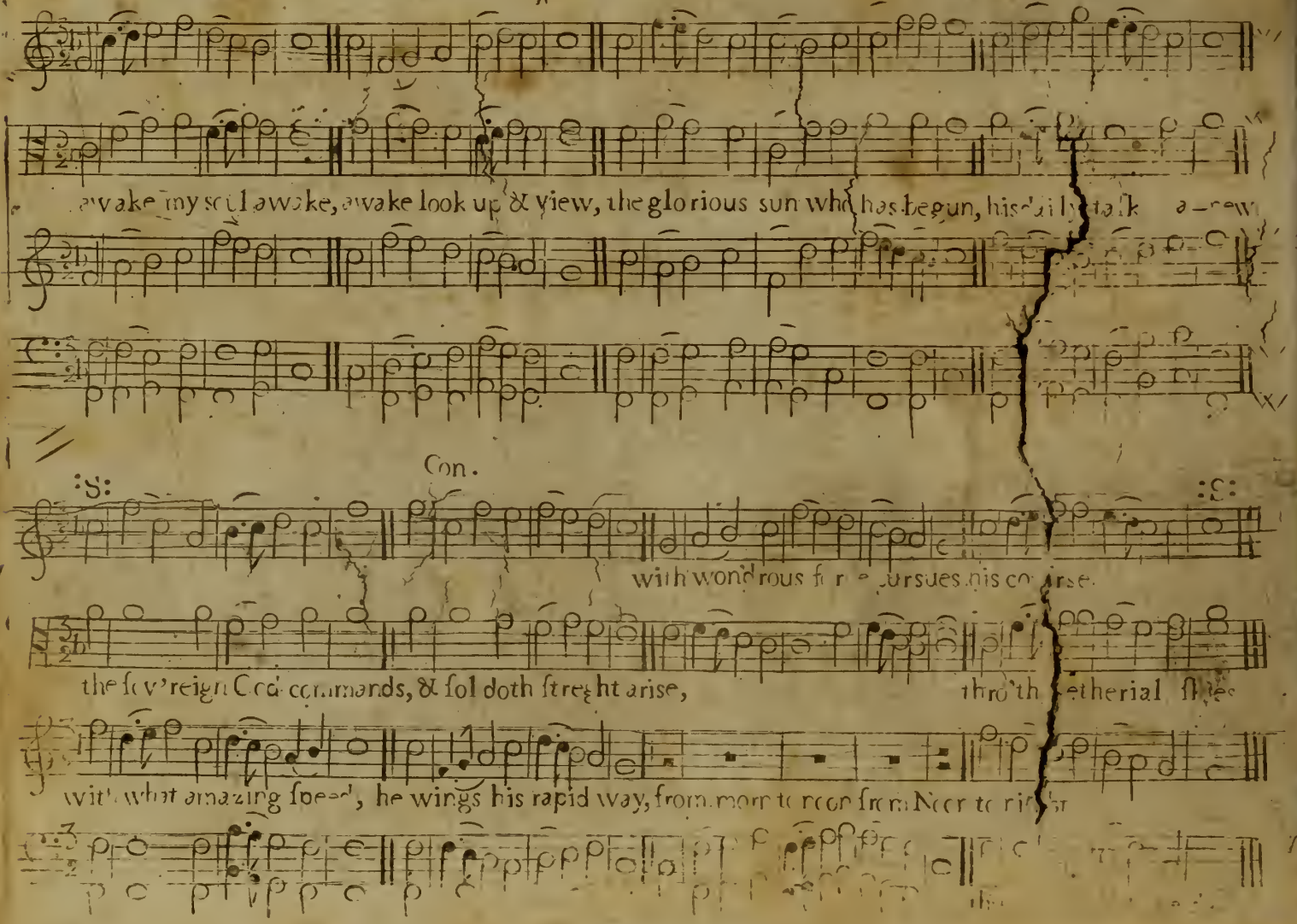
Old South. Cm.

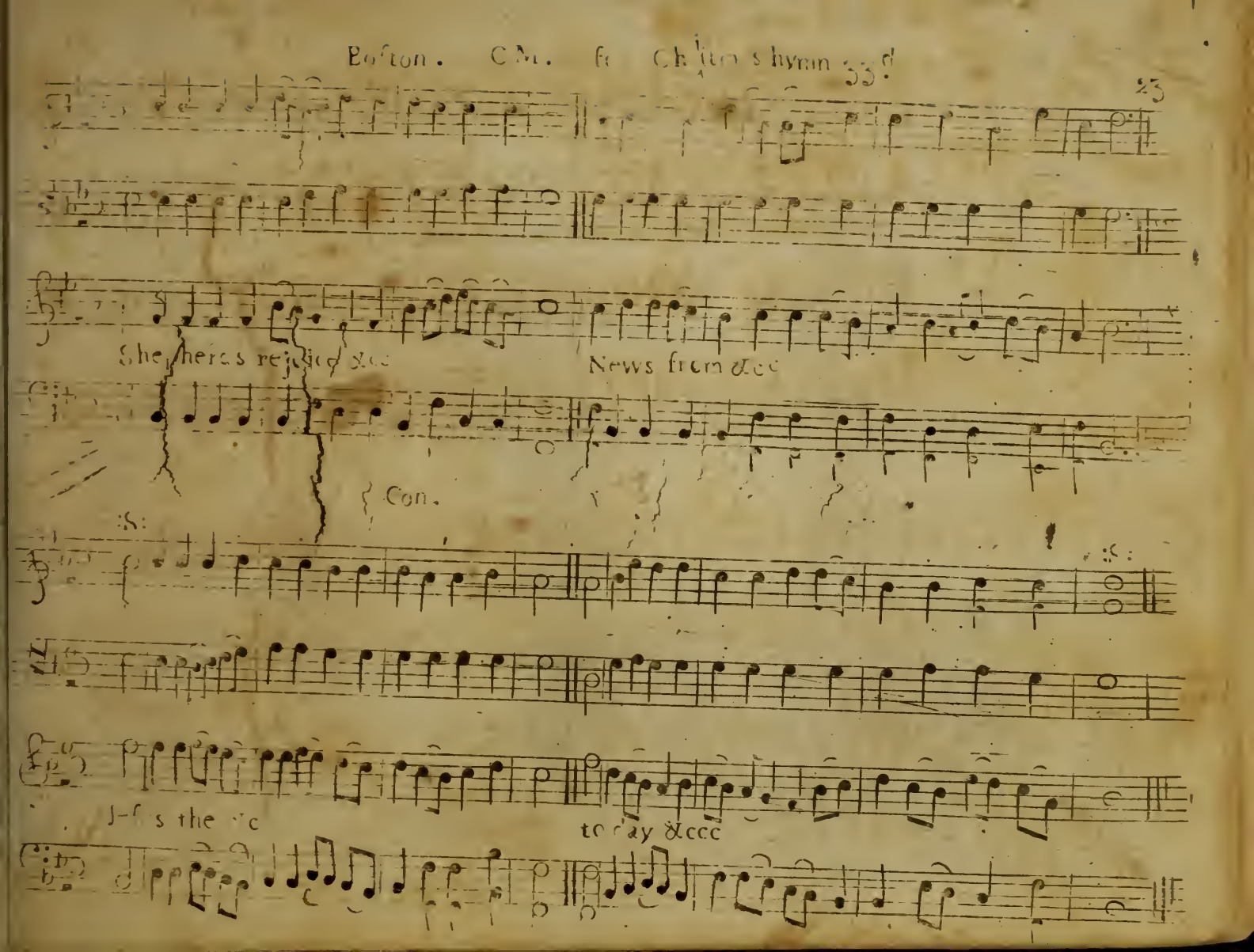


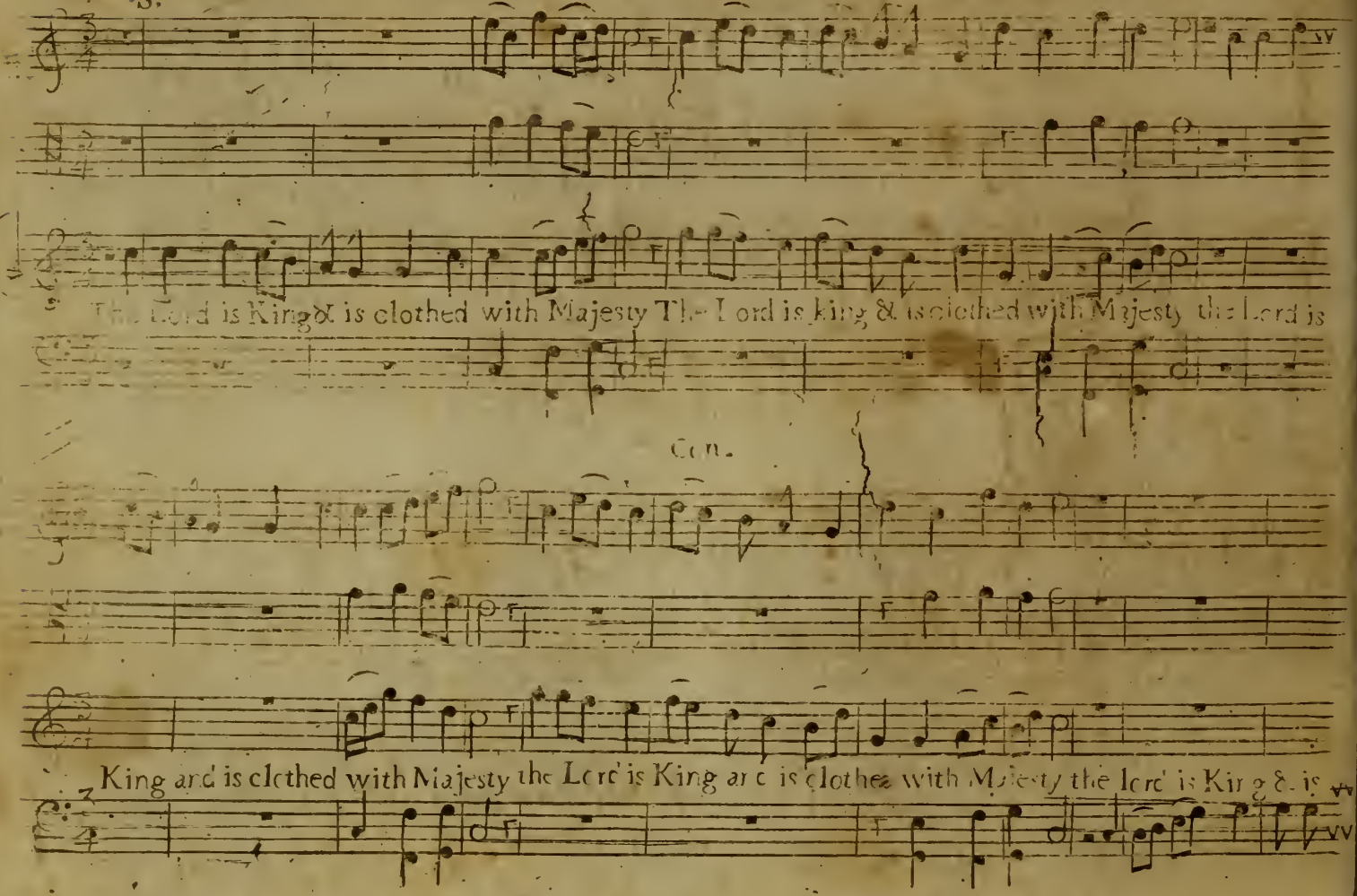
Greenland. SM.



Old North. or morn. SM.




Boston. C.M. fr Christ's hymn 33d
Shepherds rejoice &c
News from &c
Con.
Is the &c
to day &c


The Lord is King & is clothed with Majesty The Lord is king & is clothed with Majesty the Lord is
Con.
King and is clothed with Majesty the Lord is King and is clothed with Majesty the lord is King & is

Continued

:S:

the lord' is

with majesty the lord' is king & is cloathed with majesty the lord is king & is cloathed

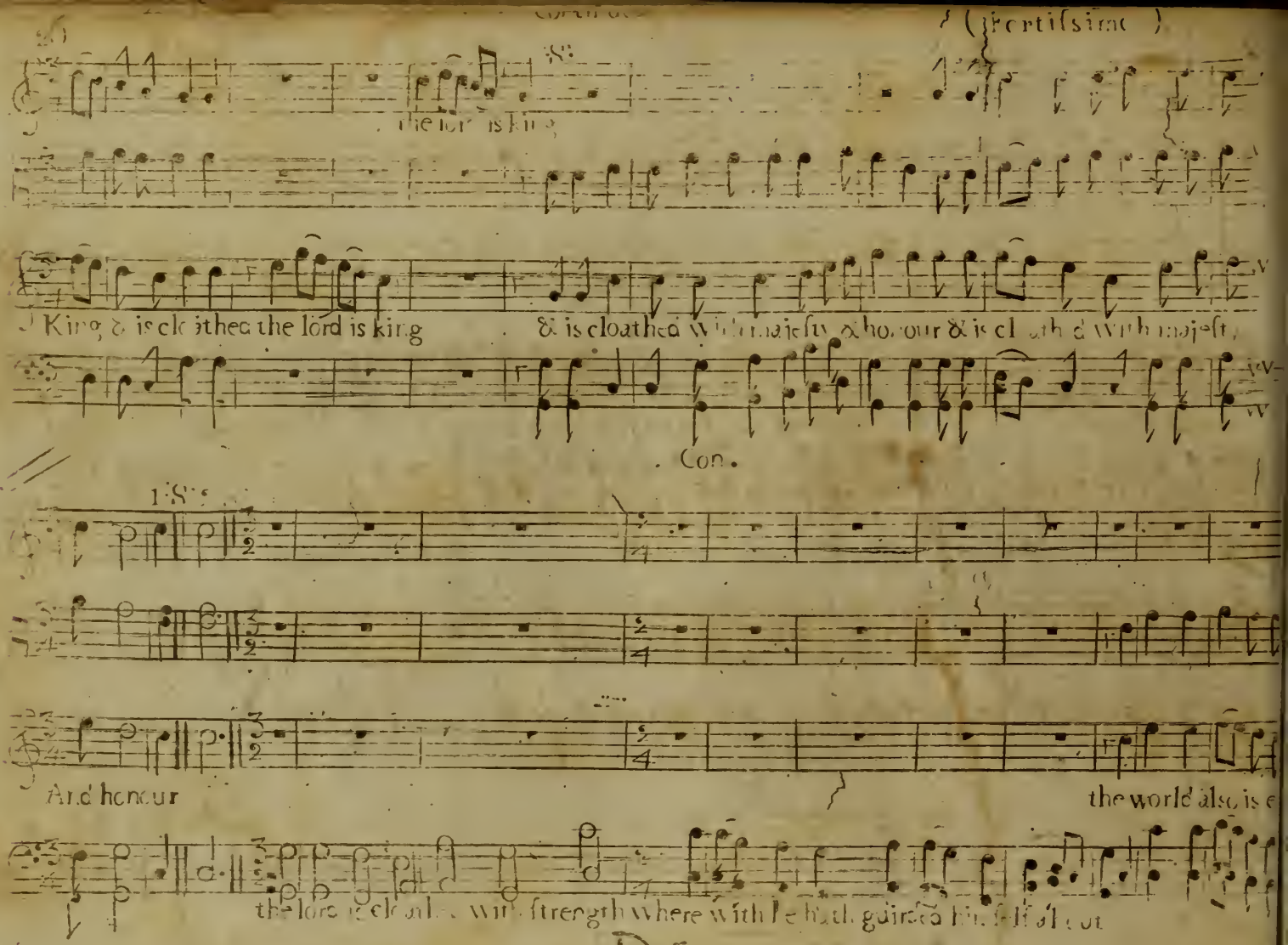
cloathed

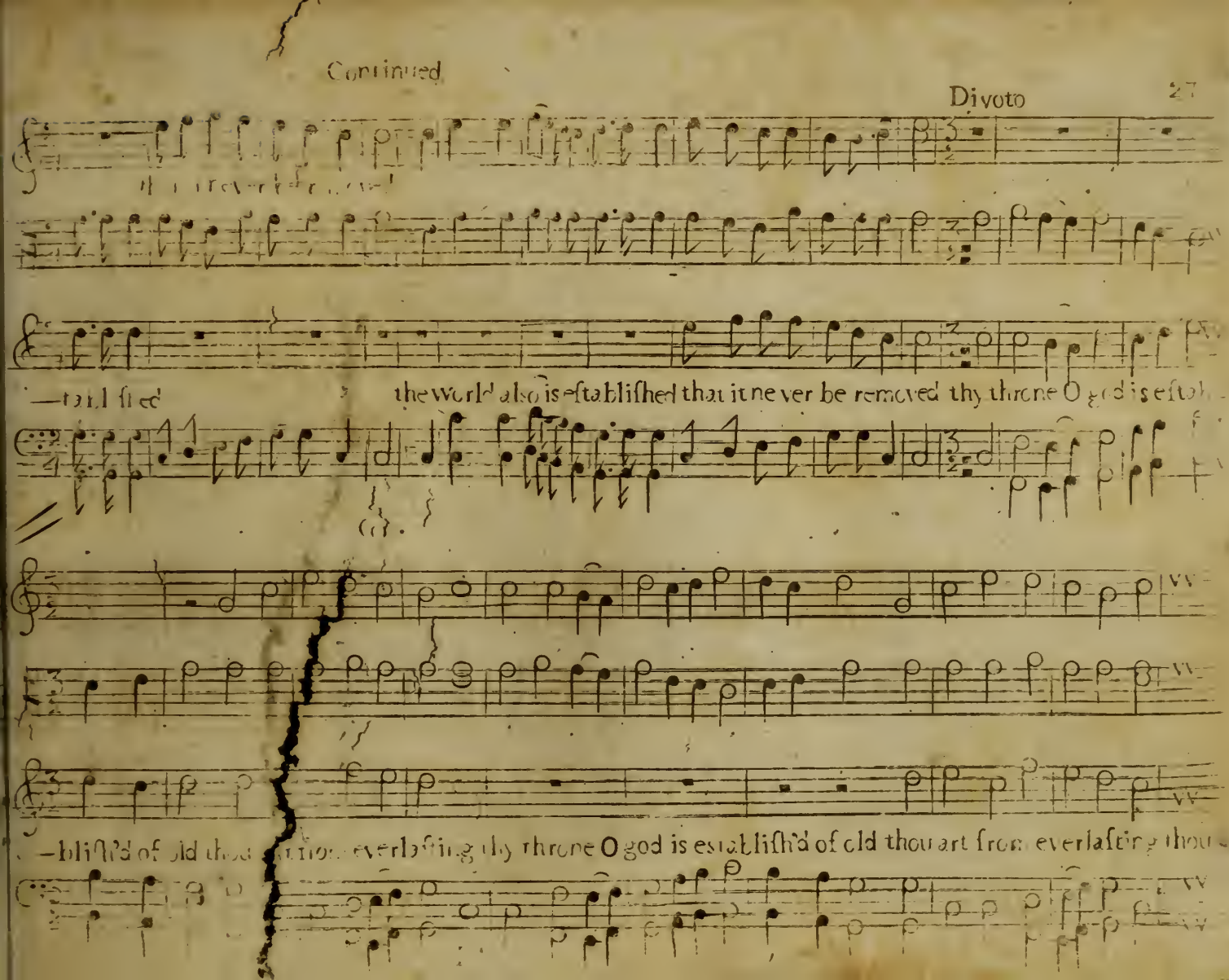
Con.

King & is cl

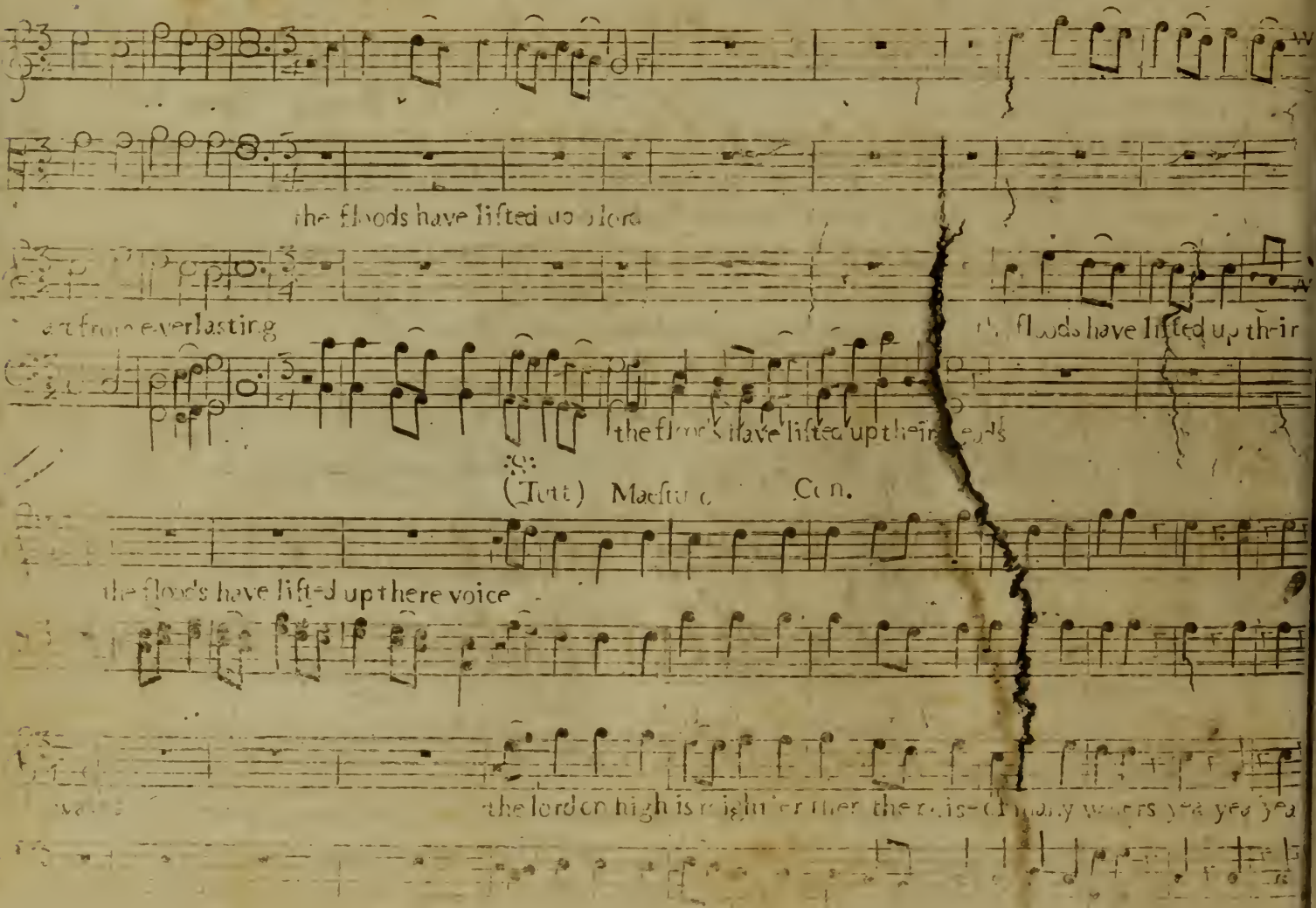
the lord' is king & is cloathed

the lord' is king & is cloathed with majesty & honour the lord is.


(fortissimo)
the lord is king
King & is clothed the lord is king
& is cloathed with majesty & honour & is clothed with majesty
Con.
And honour
the world also is e
the lord is clothed with strength where with he hath girded himself out


—tal. fted
the world also is eſtabliſhed that it never be removed thy throne O god is eſtab
—bliſh'd of old thou art from everlaſting thy throne O god is eſtabliſh'd of old thou art from everlaſting thou

Continued


the floods have lifted up their
art from everlasting
the floods have lifted up their voice
(Tutt) Maestro Con.
the floods have lifted up their voice
the lord on high is mighter than the noise of many waters yea yea yea

(Divoto)

Thy Teſtemonys are very sure

y, the voice of the lord is mighti-er then the noise of many waters

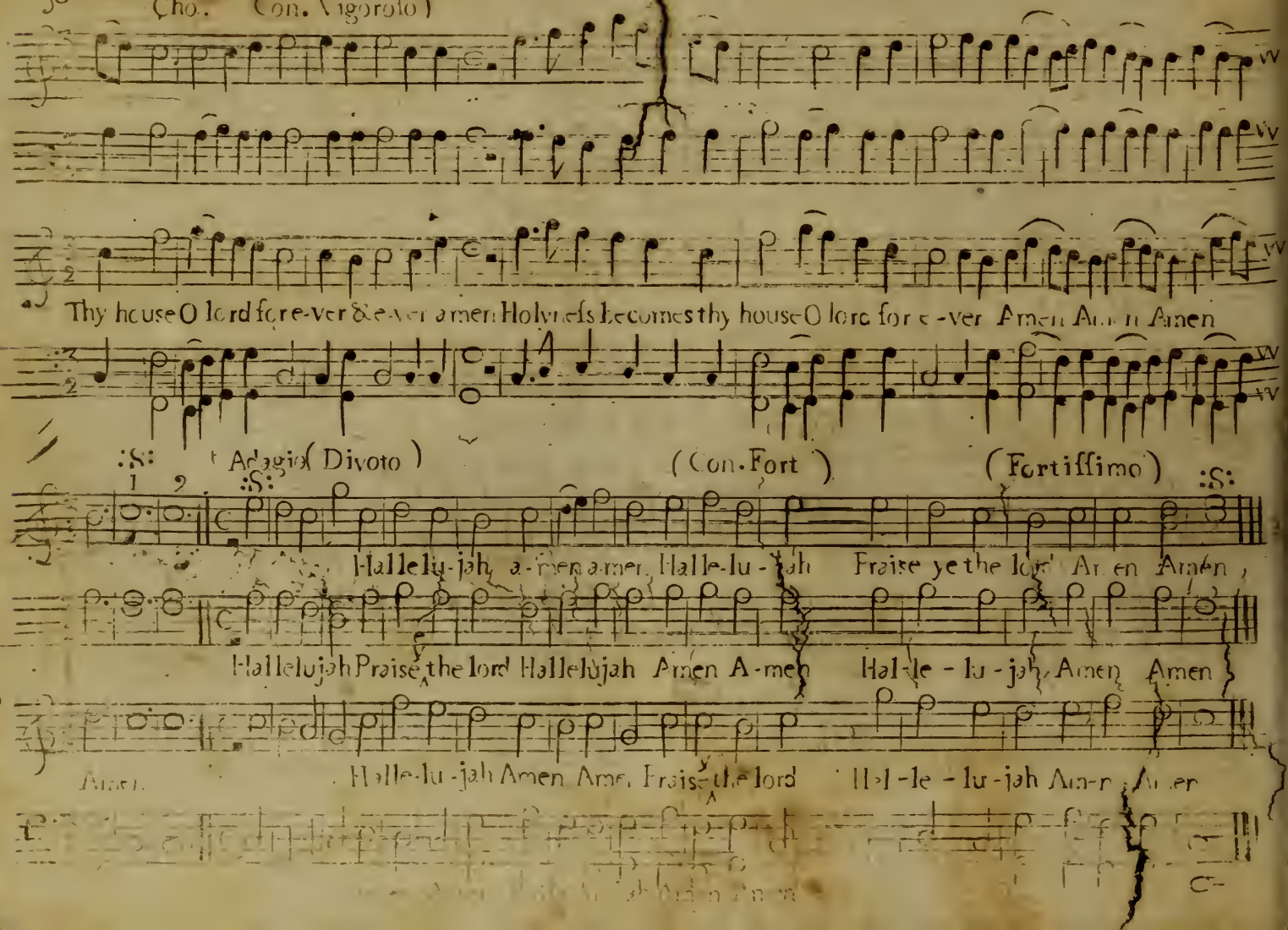
Thy Teſtemo

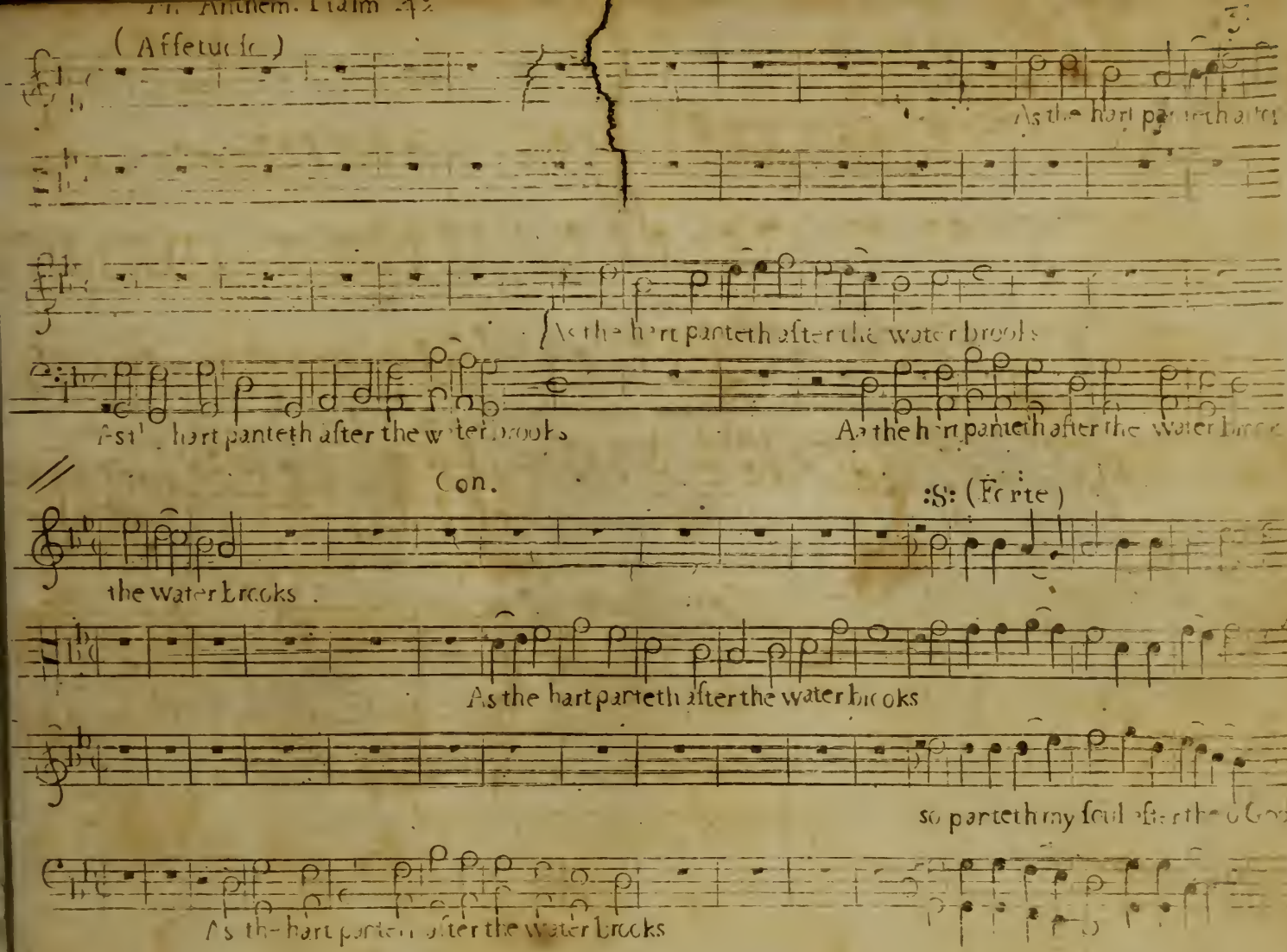
Con. Tutti (Vigoroſo)

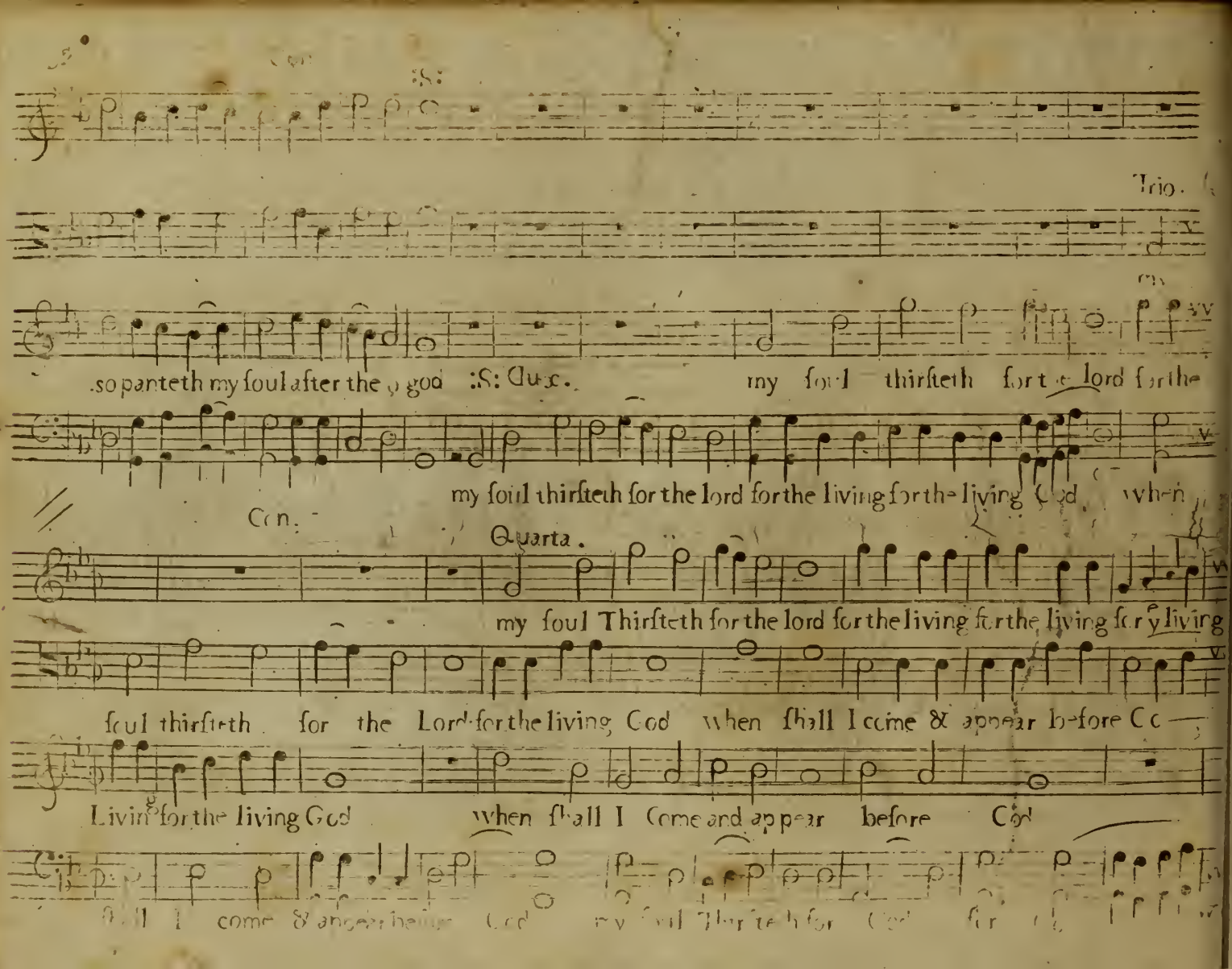
Thy Teſtemonys are very sure

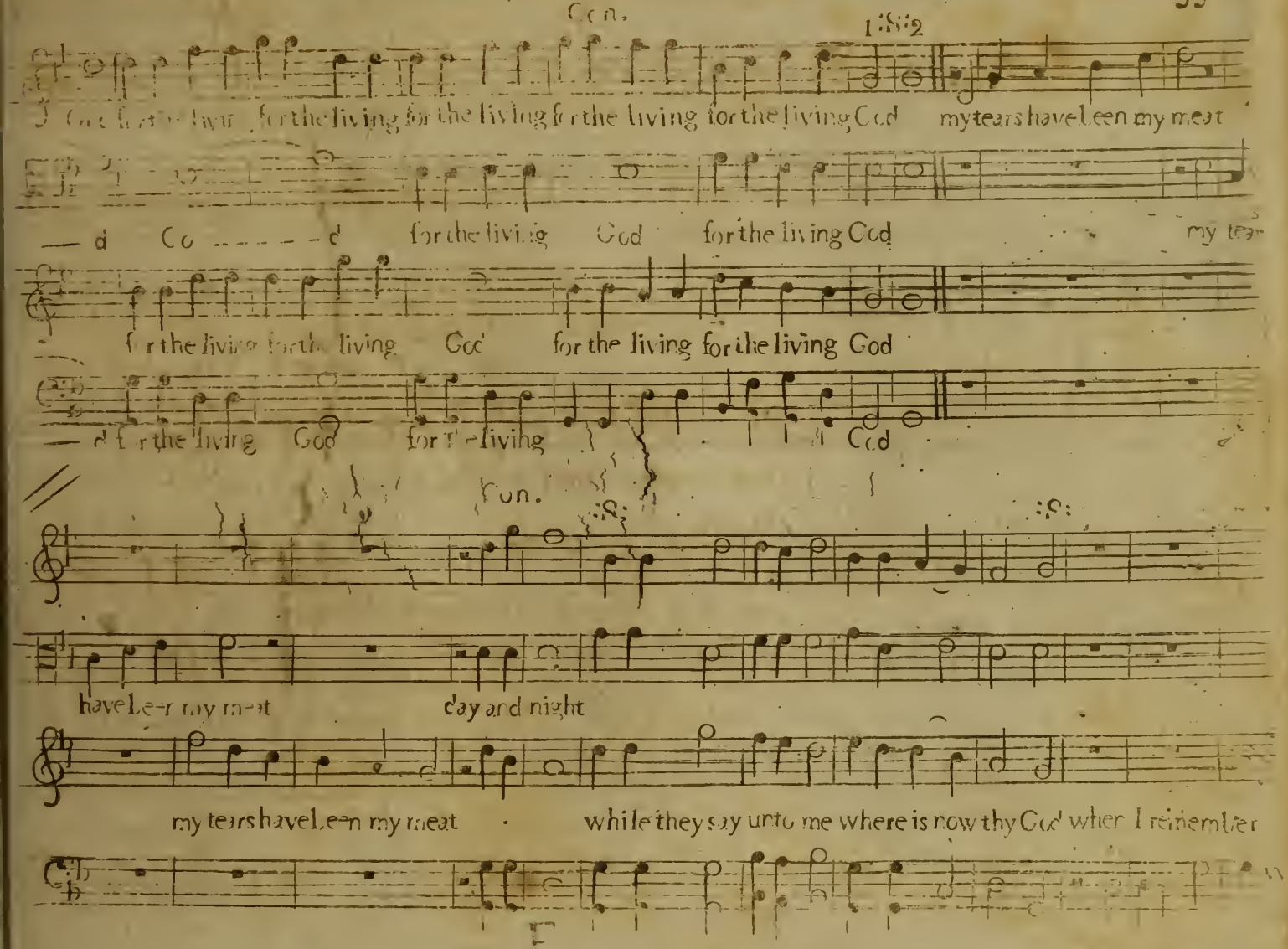
-rys are very sure

Holyneſs becom-th thy house O lord forever & ever amen holyneis becomes


Cho. Con. Vigoroso)
Thy house O lord fore-ver & e-ver amen Holyness becomes thy house O lord for e-ver Amen Amen Amen
Adagio(Divoto)
(Con. Fort)
(Fortissimo)
Halleluj-jah a-men amen Halle-lu-jah Praise ye the lord Amen Amen
Hallelujah Praise the lord Hallelujah Amen A-men Hal-le-lu-jah Amen Amen
Halle-lu-jah Amen Amen Praise the lord Hal-le-lu-jah Amen Amen


(Affetuoſo)
As the hart panteth after
As the hart panteth after the water brooks
As the hart panteth after the water brooks
As the hart panteth after the water brooks
(Con.
:S: (Forte)
the water brooks.
As the hart panteth after the water brooks
so panteth my soul after thee O God
As the hart panteth after the water brooks


Trio.
so panteth my soul after the y god
Duæ.
my soul thirsteth for the lord for the
my soul thirsteth for the lord for the living for the living God when
Con.
Quarta.
my soul Thirsteth for the lord for the living for the living for y living
soul thirsteth for the Lord for the living God when shall I come & appear before Co —
Livin for the living God when shall I Come and appear before God
shall I come & appear before God my soul Thirsteth for God for


Con.
1:S:2
for the living for the living for the living for the living God my tears have been my meat
— d Co — — — d for the living God for the living God my tear
for the living for the living God for the living for the living God
— d for the living God for the living God
Con.
have been my meat day and night
my tears have been my meat while they say unto me where is now thy God when I remember

Con.

(vivace.)

I pour out my soul in me

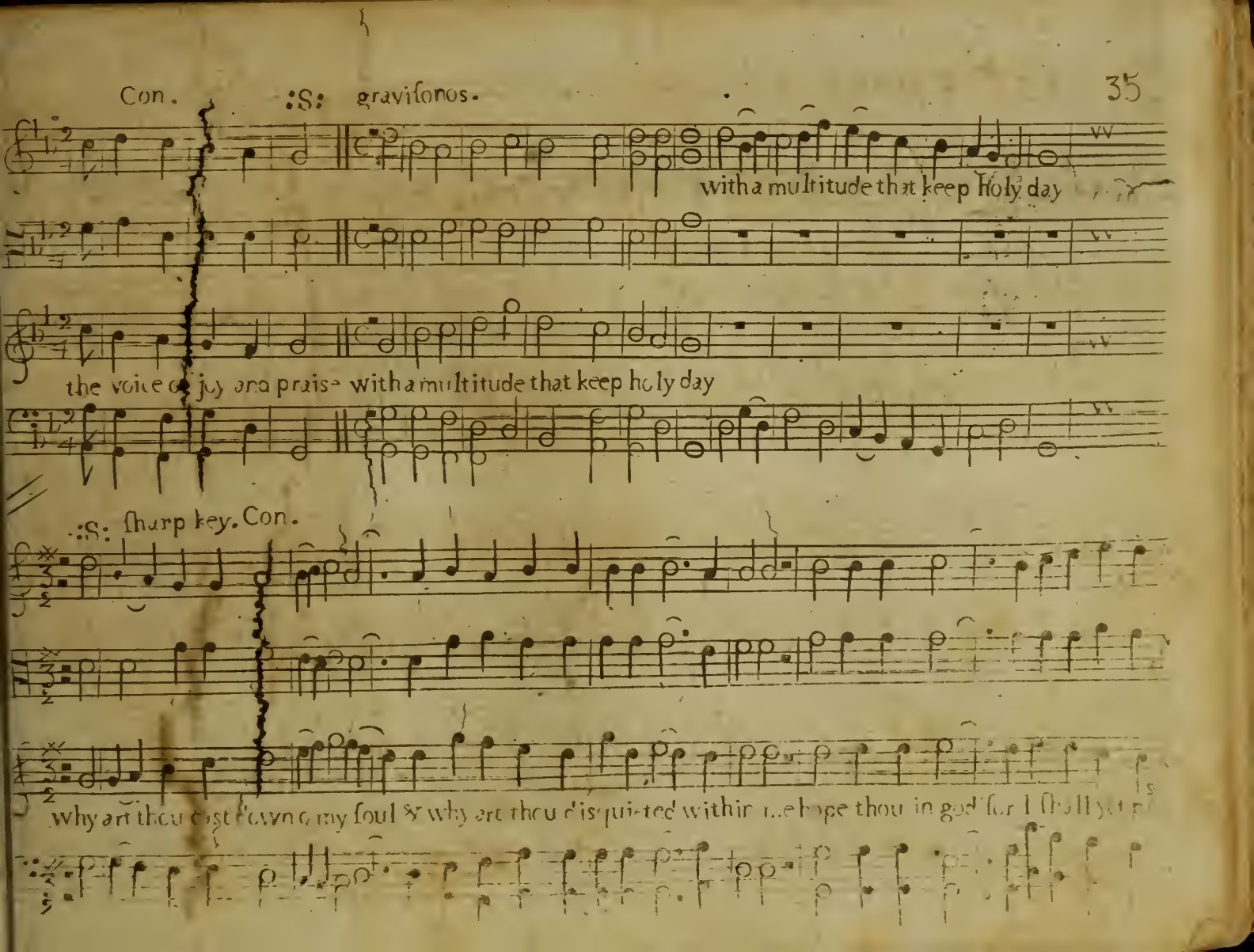
when I remember these thin - - - - - - - - - - gs

for

these thin - - - - - - gs

Con.

go e with the multitud for I had gone with the multitude I went with them into the house of God with


Con. :S: graviſonos.
with a multitude that keep holy day
the voice of joy and praiſe with a multitude that keep holy day
:S: ſharp key. Con.
why art thou caſt down o my ſoul & why art thou diſquieted within me hope thou in god for I ſhall yet

Con:

:S: b key Adagio

O my

him for the help of his countenance O my God my soul is cast down within me

therefore will I remember th- & from the lard of

Con

God my soul i cast down within me

and from y hill of mizar

an - - - - d from y lona of Joraan

and from my hill of miz r

Jor - dan

therefore w I remember y & from y lard of Jordan

Con

all thy waves & thy billows are gone over

deep called unto dee - - - - - p

deep called unto deep

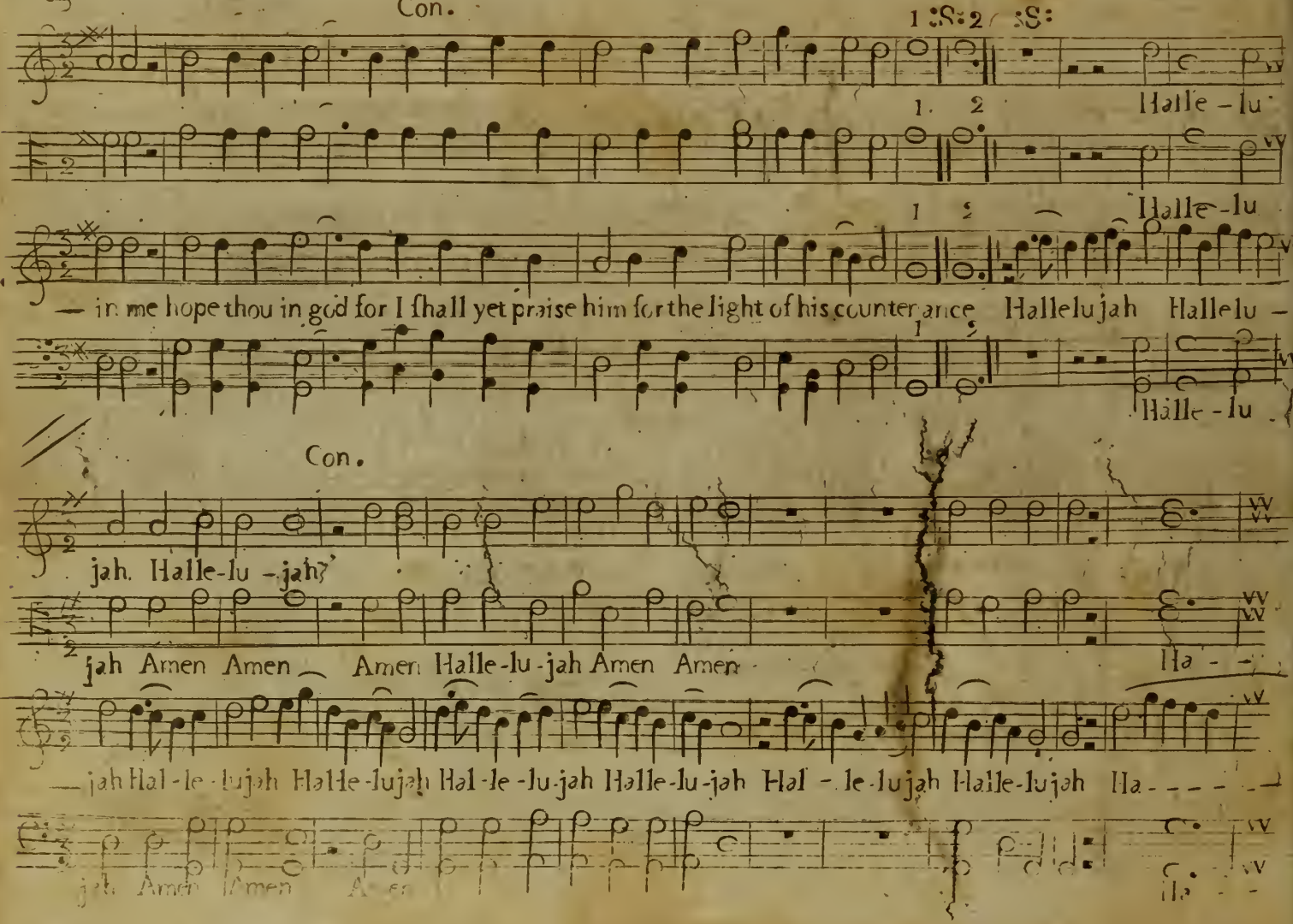
deep called unto deep

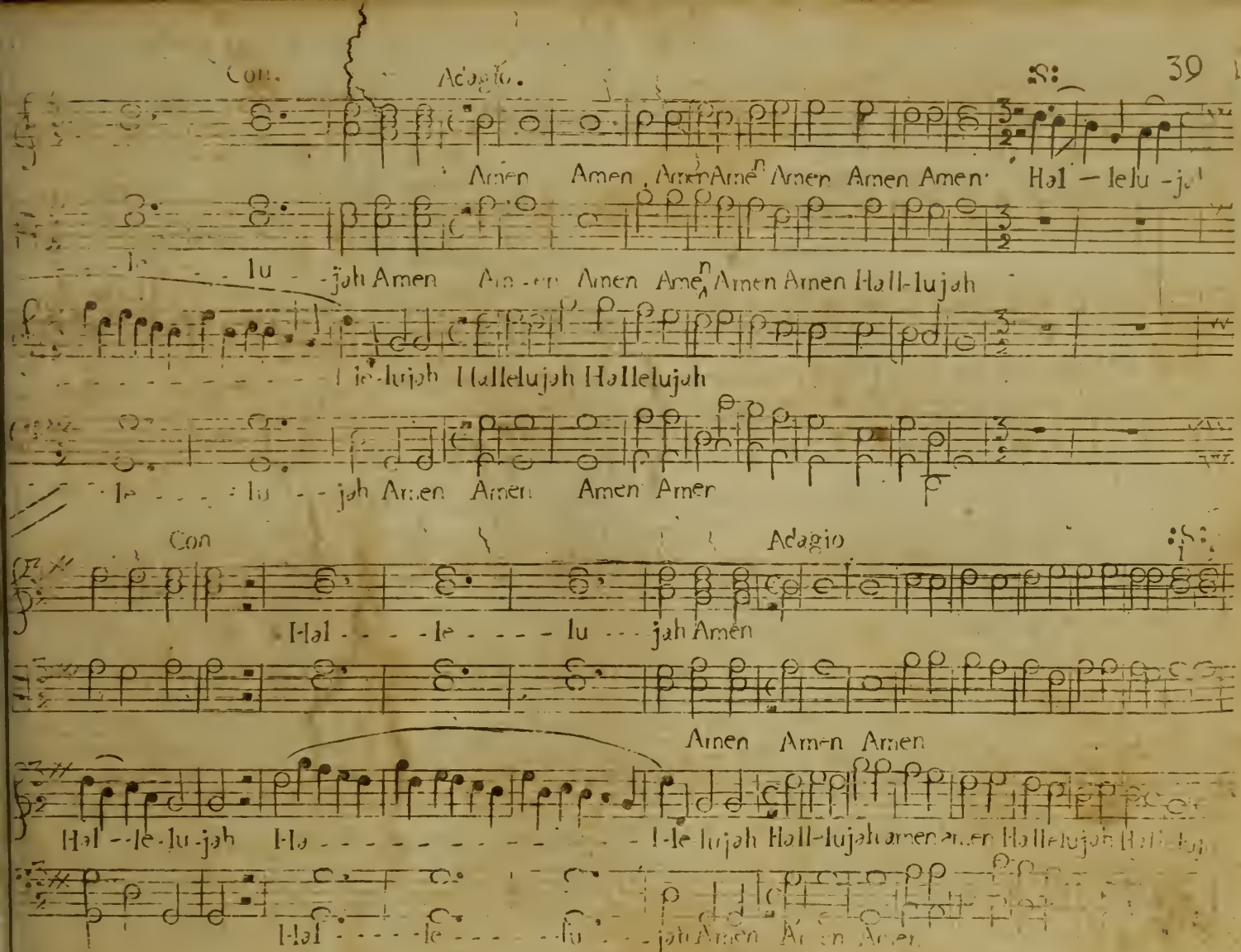
Con.

(Vigorofo)

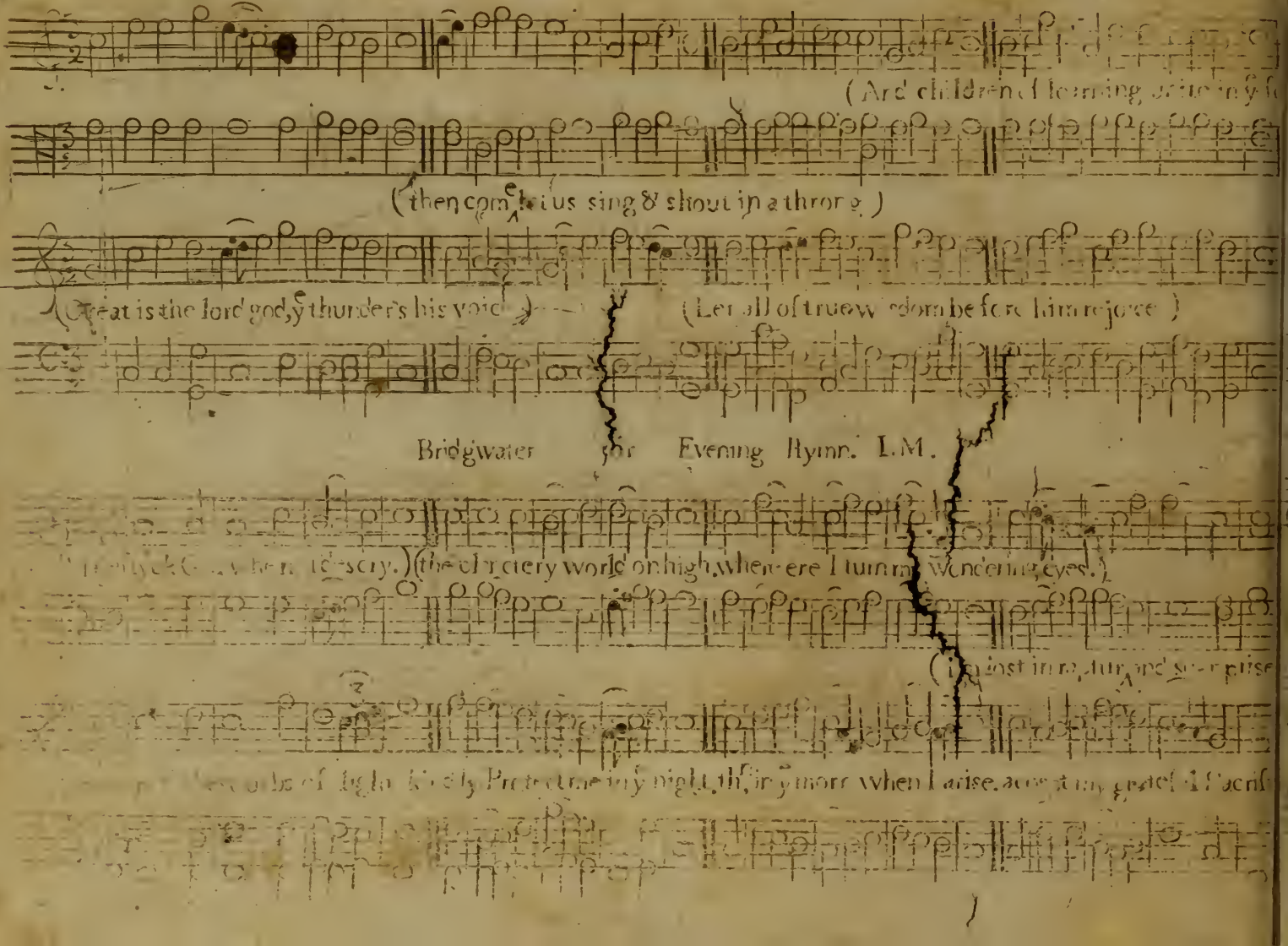
sharp key

all thy waves & thy billows are gone over me why art thou cast down O my soul & why art thou disquieted

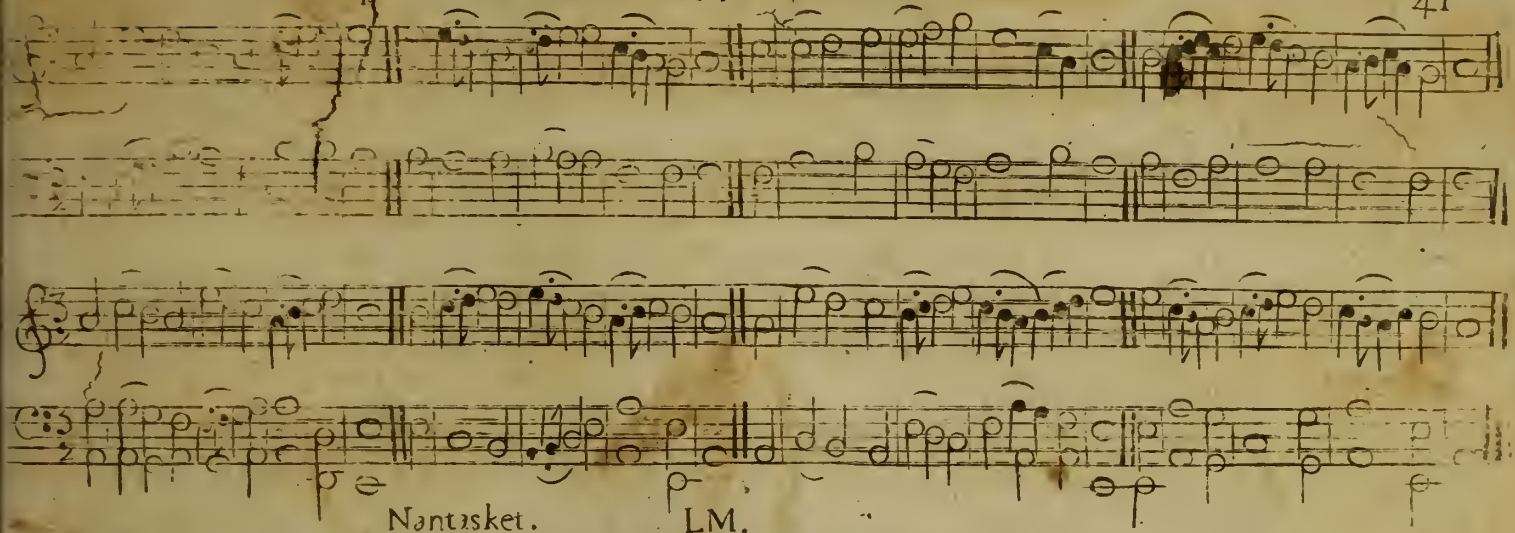

Con.
1 :S: 2 :S:
Halle - lu
Halle - lu
— in me hope thou in god for I shall yet praise him for the light of his counter ance Hallelujah Hallelu -
Halle - lu
Con.
jah. Halle-lu - jah
jah Amen Amen — Amen Halle-lu-jah Amen Amen
Ha - -
— jah Hal-le-lujah Halle-lujah Hal-le-lu-jah Halle-lu-jah Hal - le-lujah Halle-lujah Ha - - - -
jah Amen Amen A
Ha - -


Con.
Adagio.
Amen Amen Amen Amen Amen Amen Amen Hal — le lu - jah
le lu - jah Amen Amen Amen Amen Amen Amen Hall-lujah
Hallelujah Hallelujah Hallelujah
le lu - jah Amen Amen Amen Amen
Con
Adagio
Hal - - - le - - - lu - - jah Amen
Amen Amen Amen
Hal - le-lu-jah Ha - - - - - - - - - - - le lujah Hall-lujah amen amen Hallelujah Hal-lu
Hal - - - - le - - - - lu - - jah Amen Amen Amen

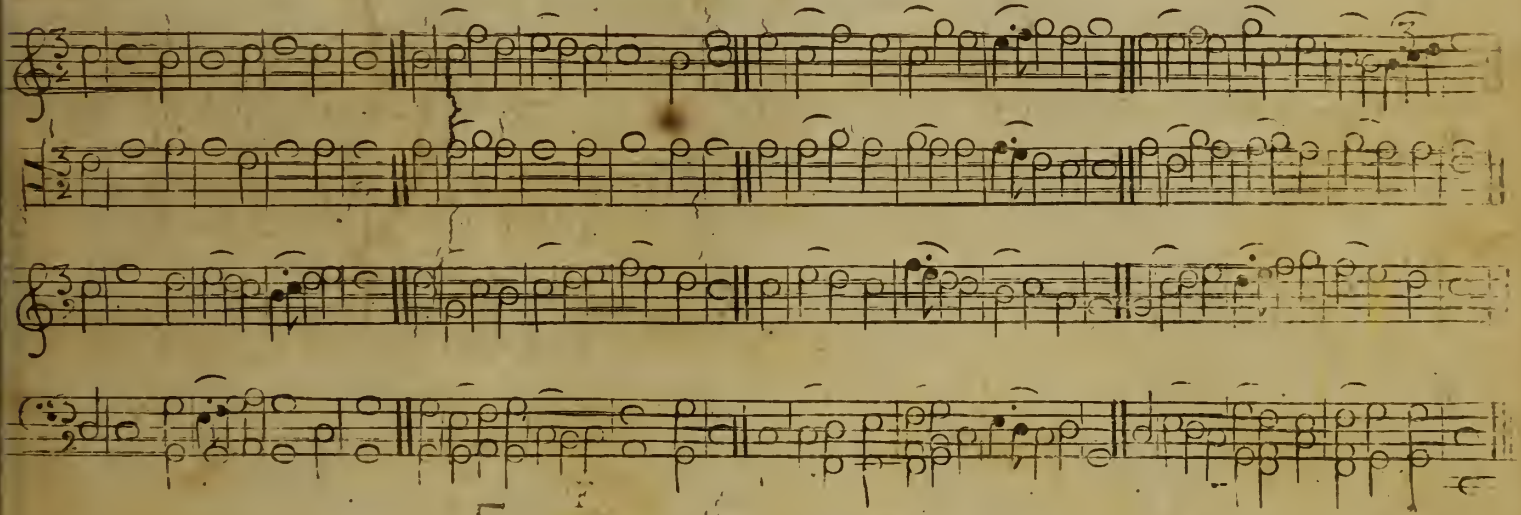
Massechustts words by P M As 148th Psalm



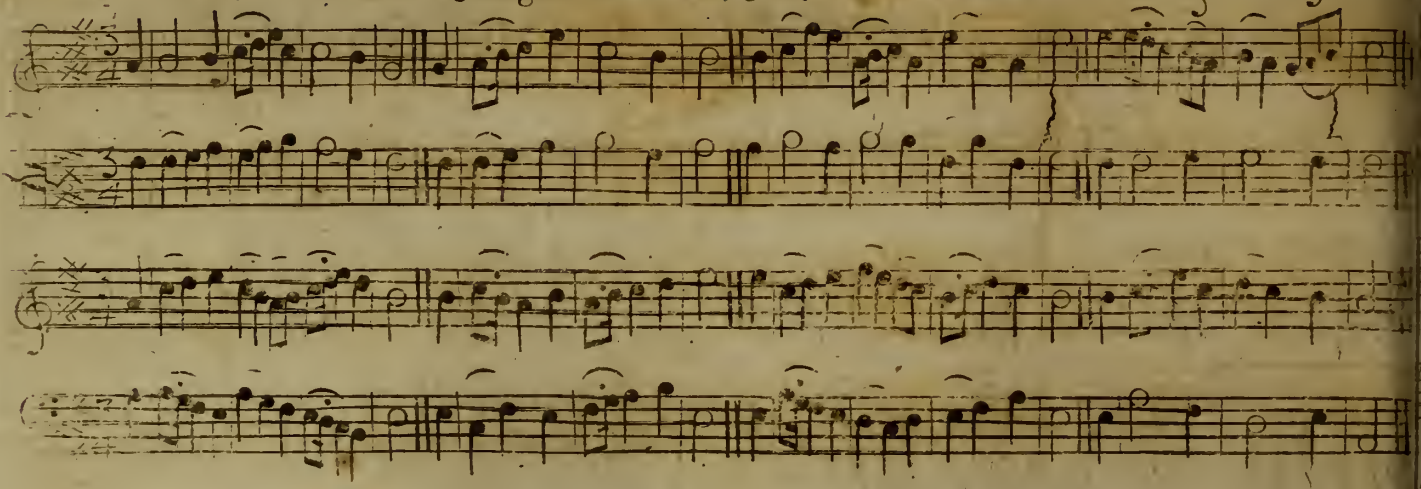
Pleasant Street. LM.



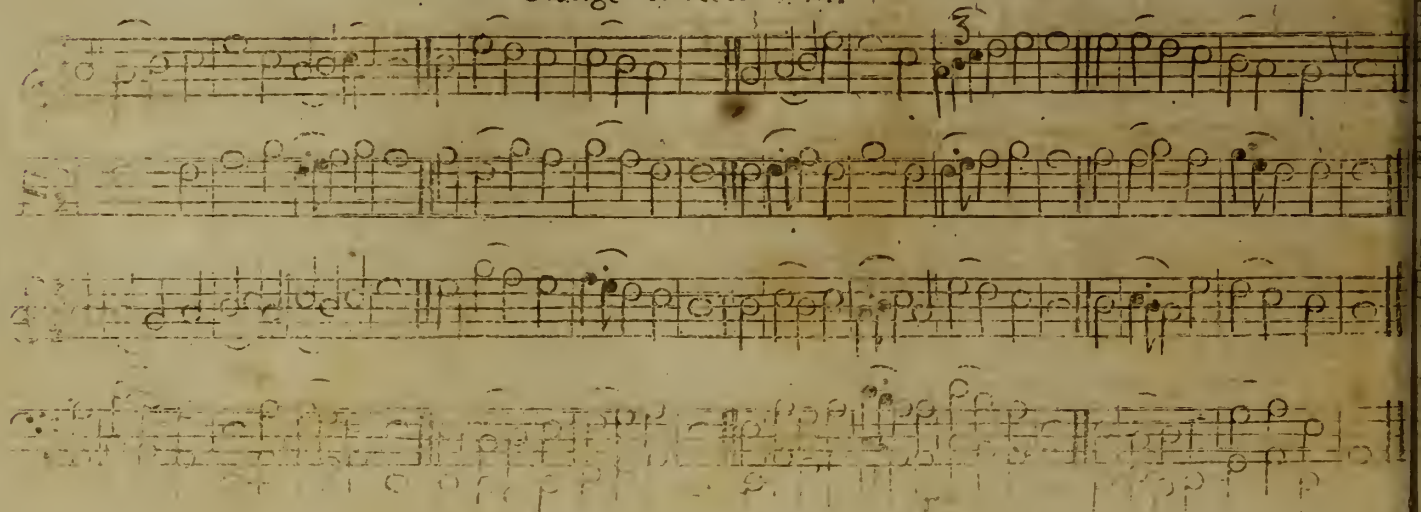
Nantasket. LM.

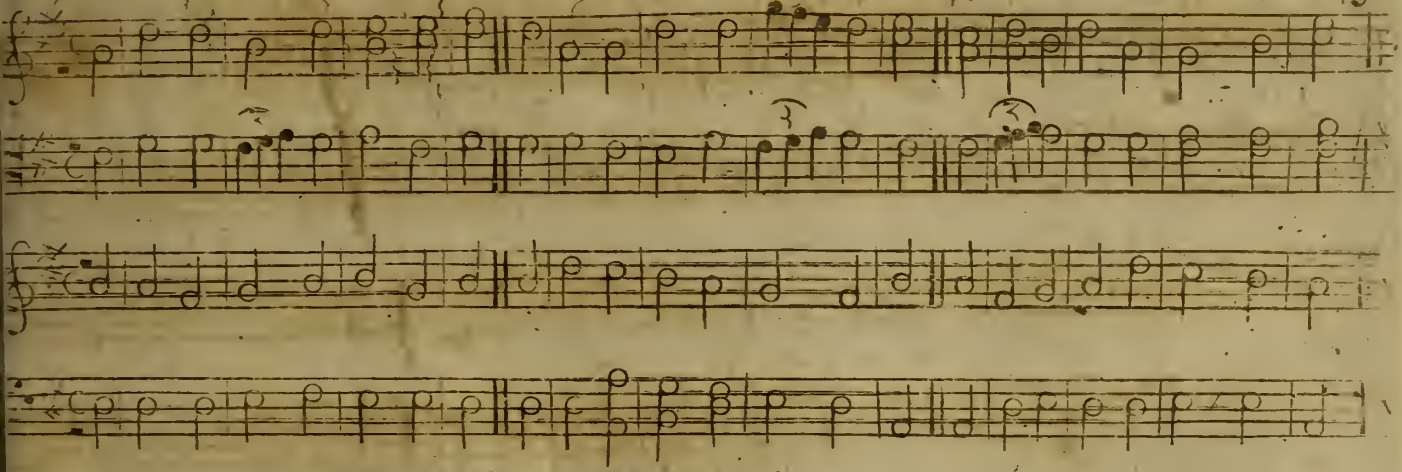


Stoughton. C M.

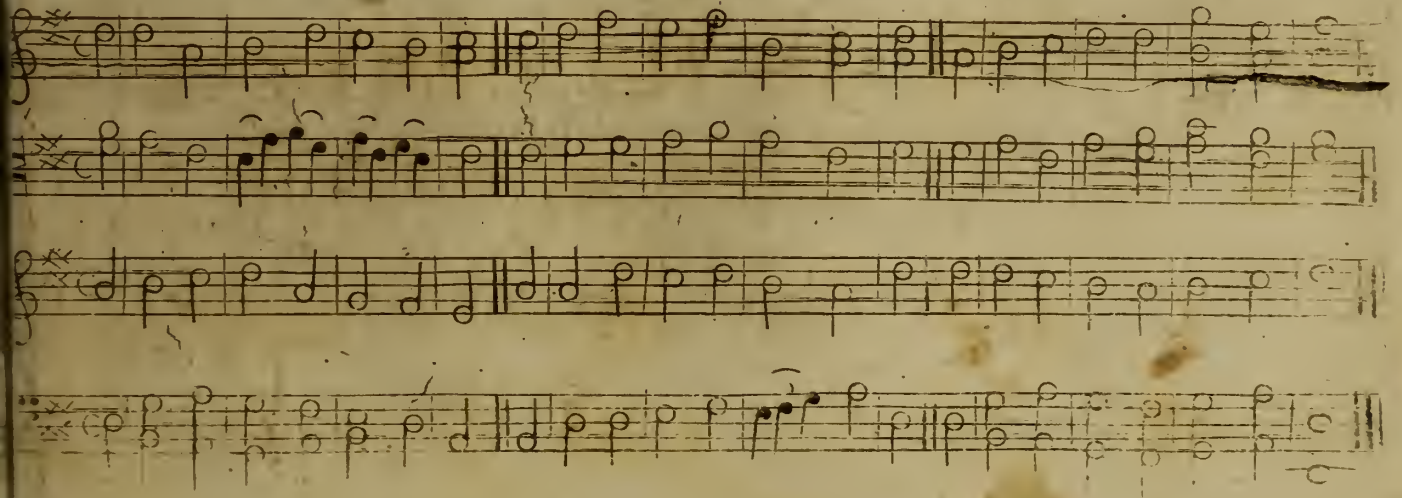


Orange Street. C M.

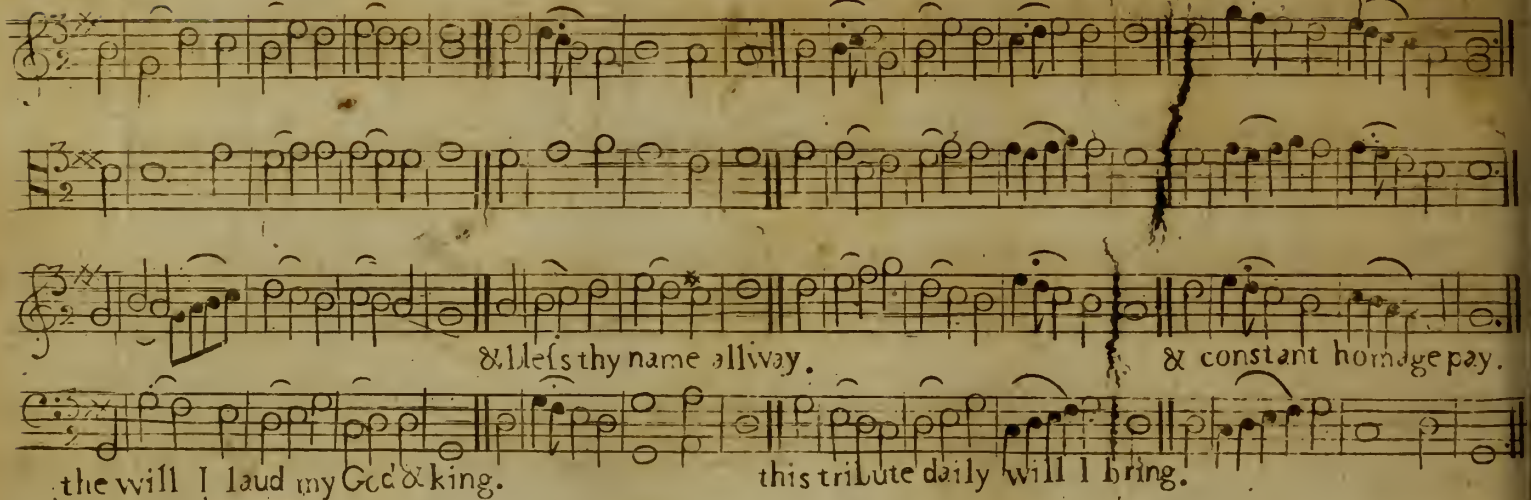




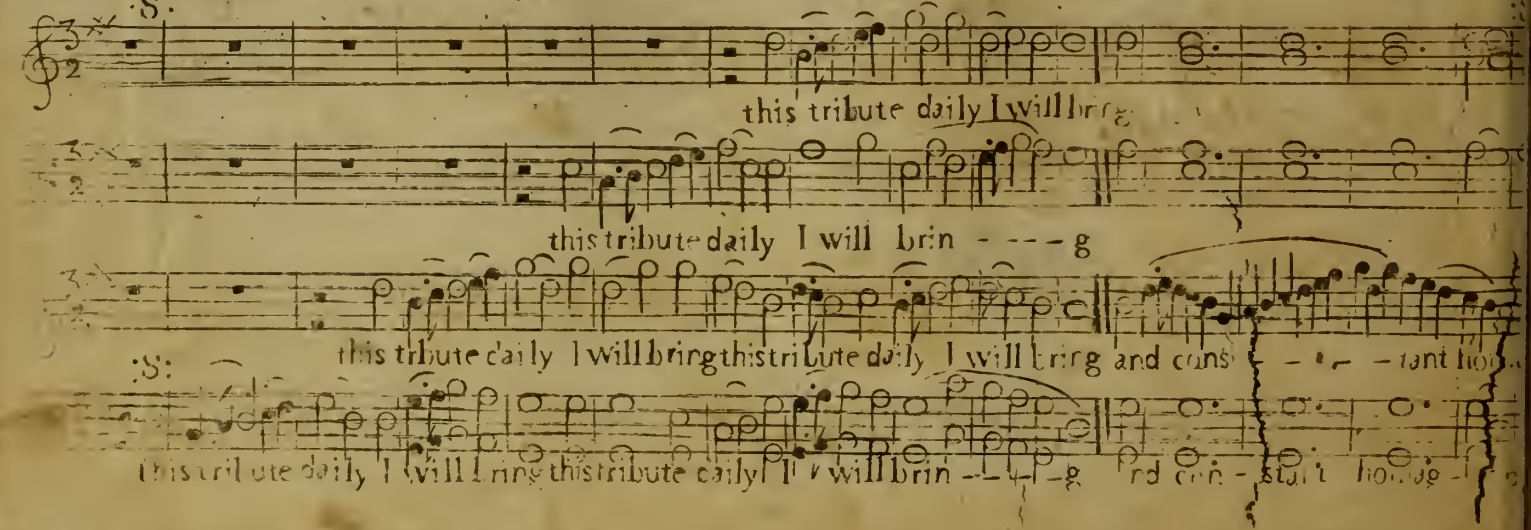
Con.



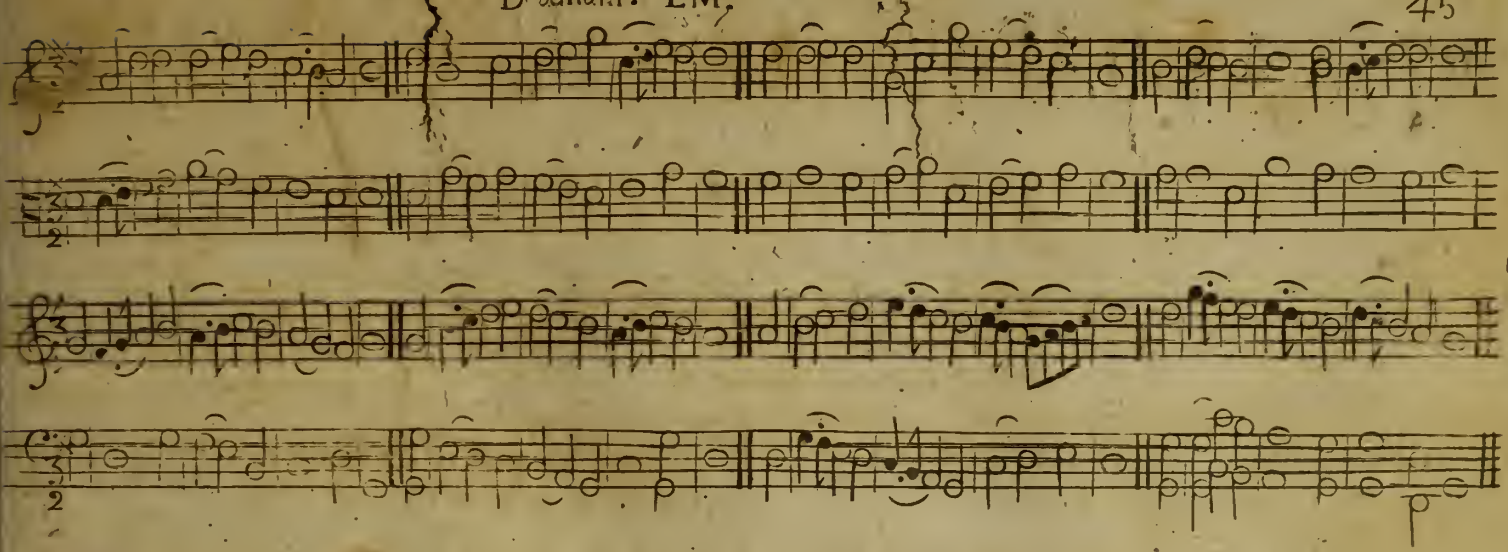
Milton. CM. Psalm. 145.



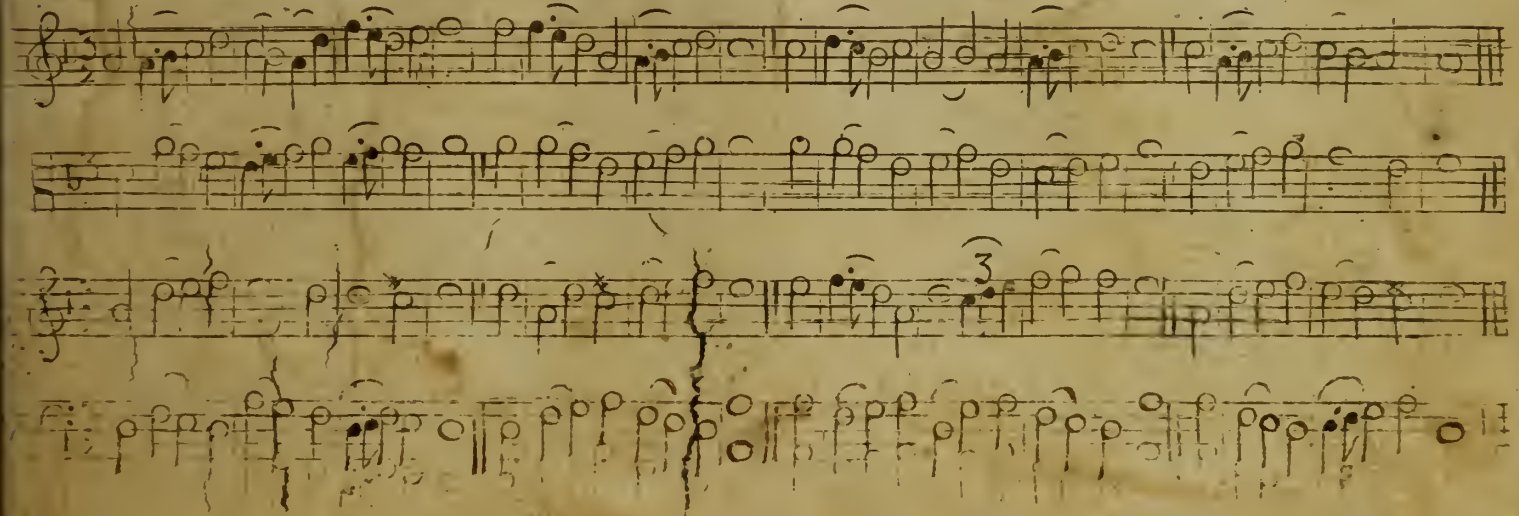
Con.



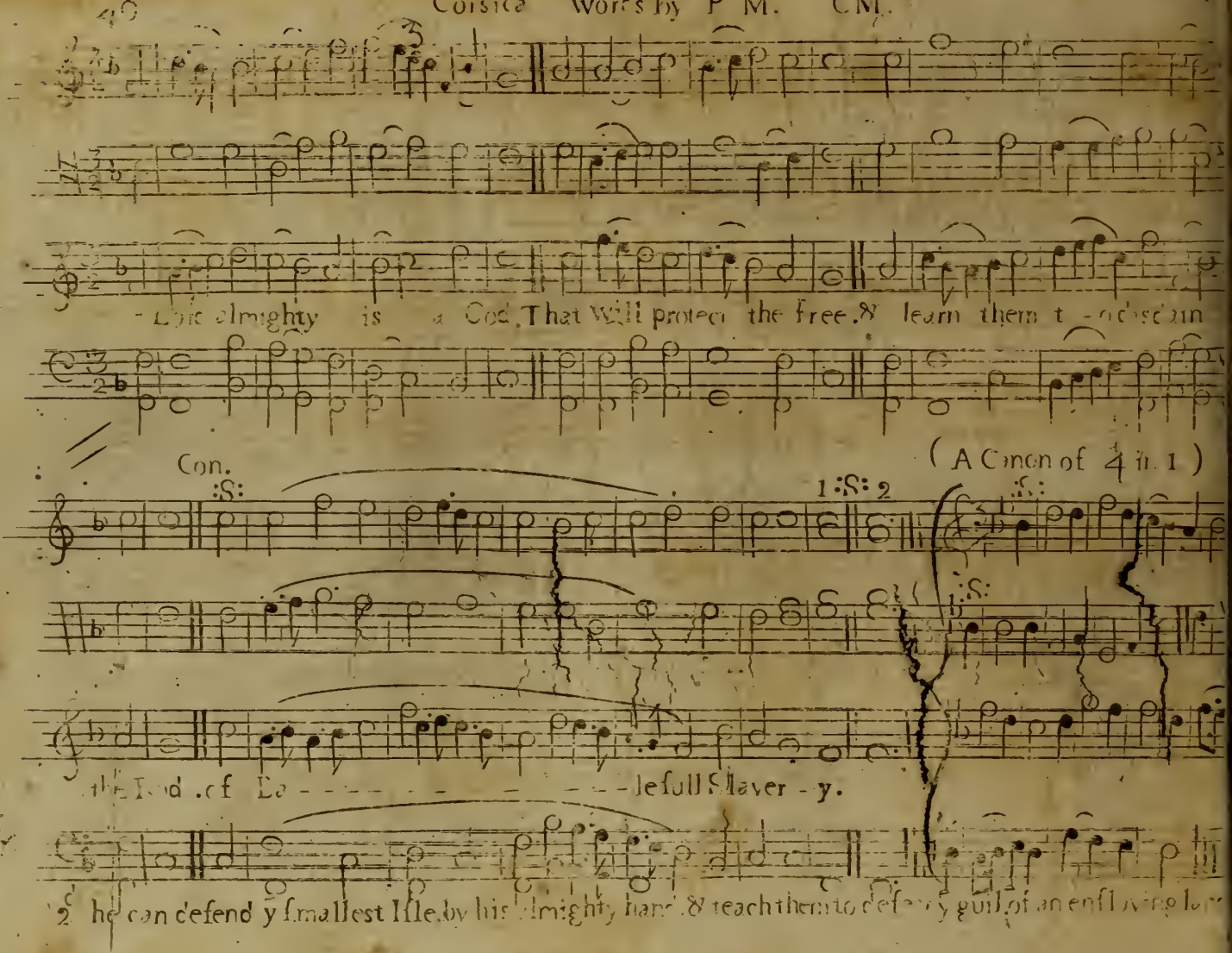
Dedham. LM.

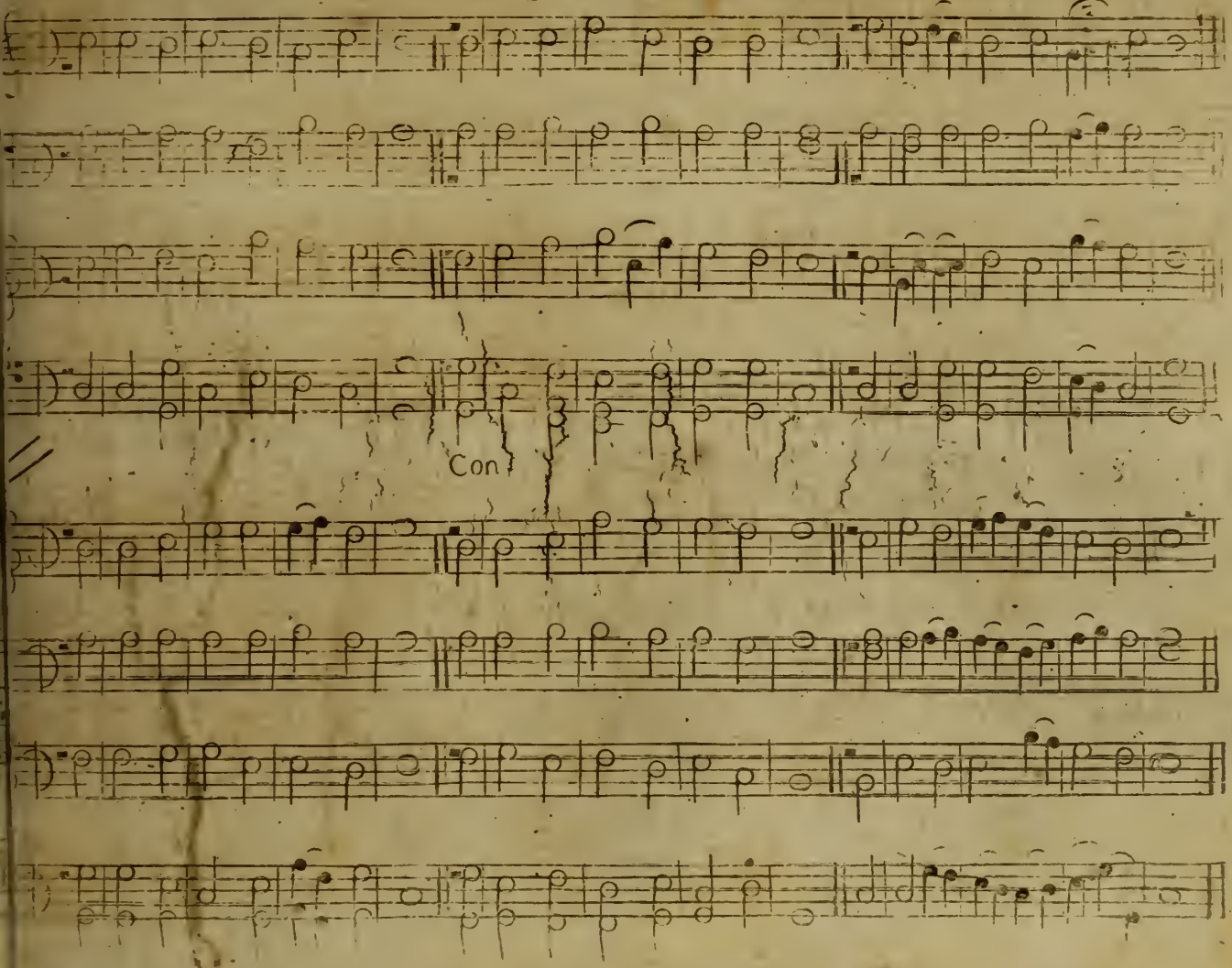


Prince. Town. CM.

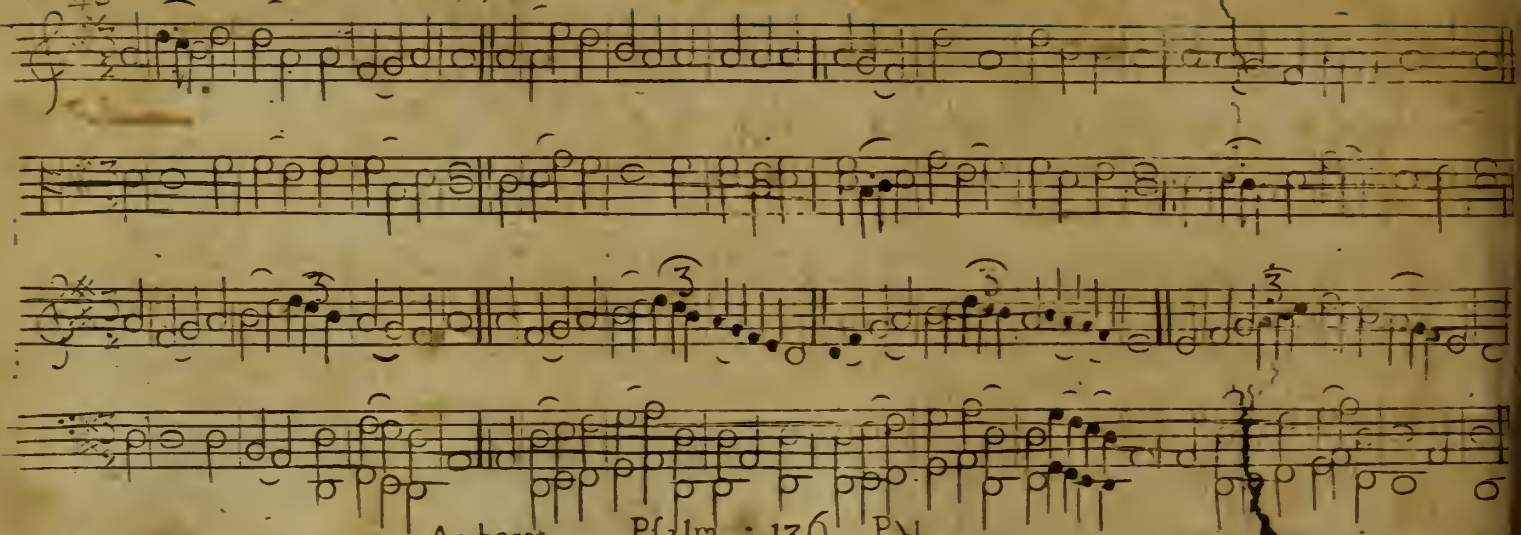


Corsica words by P M. CM.

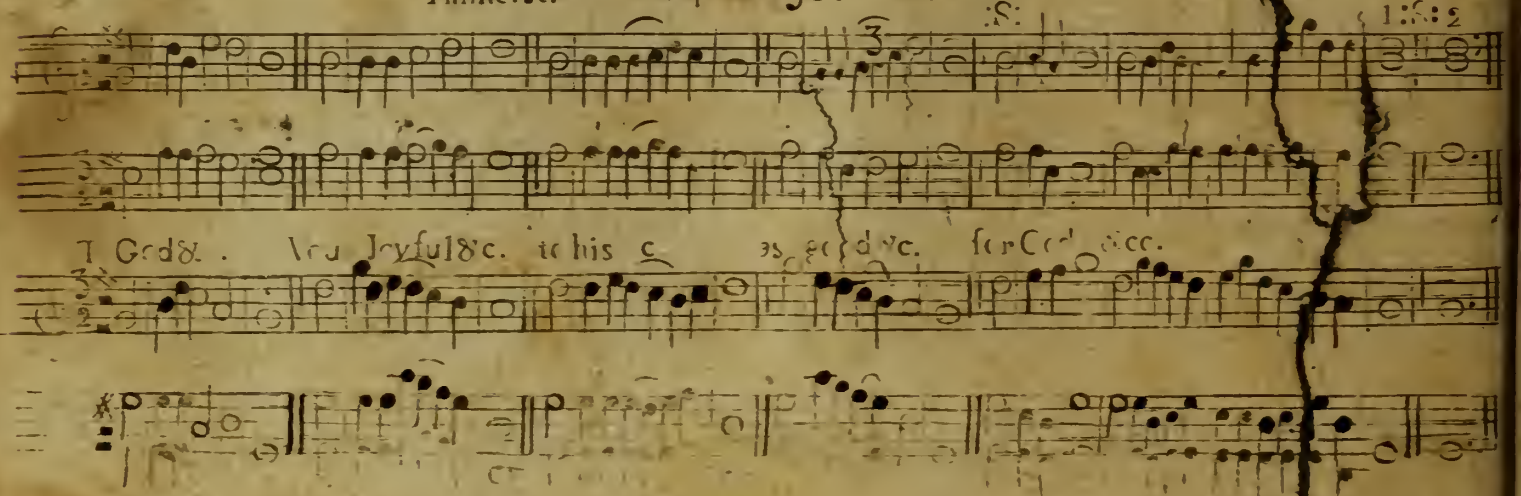


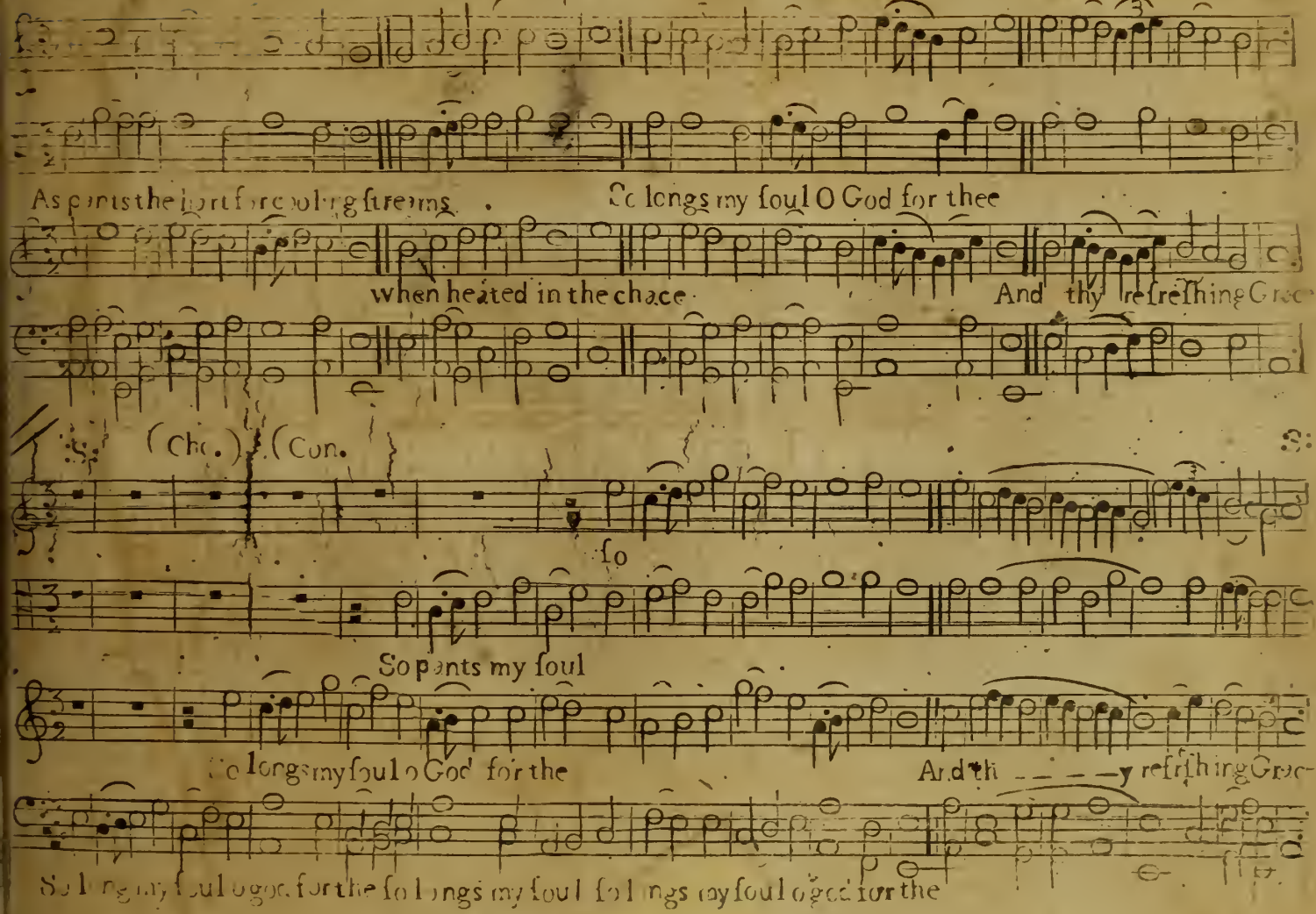

Con

Chelsea. LM.

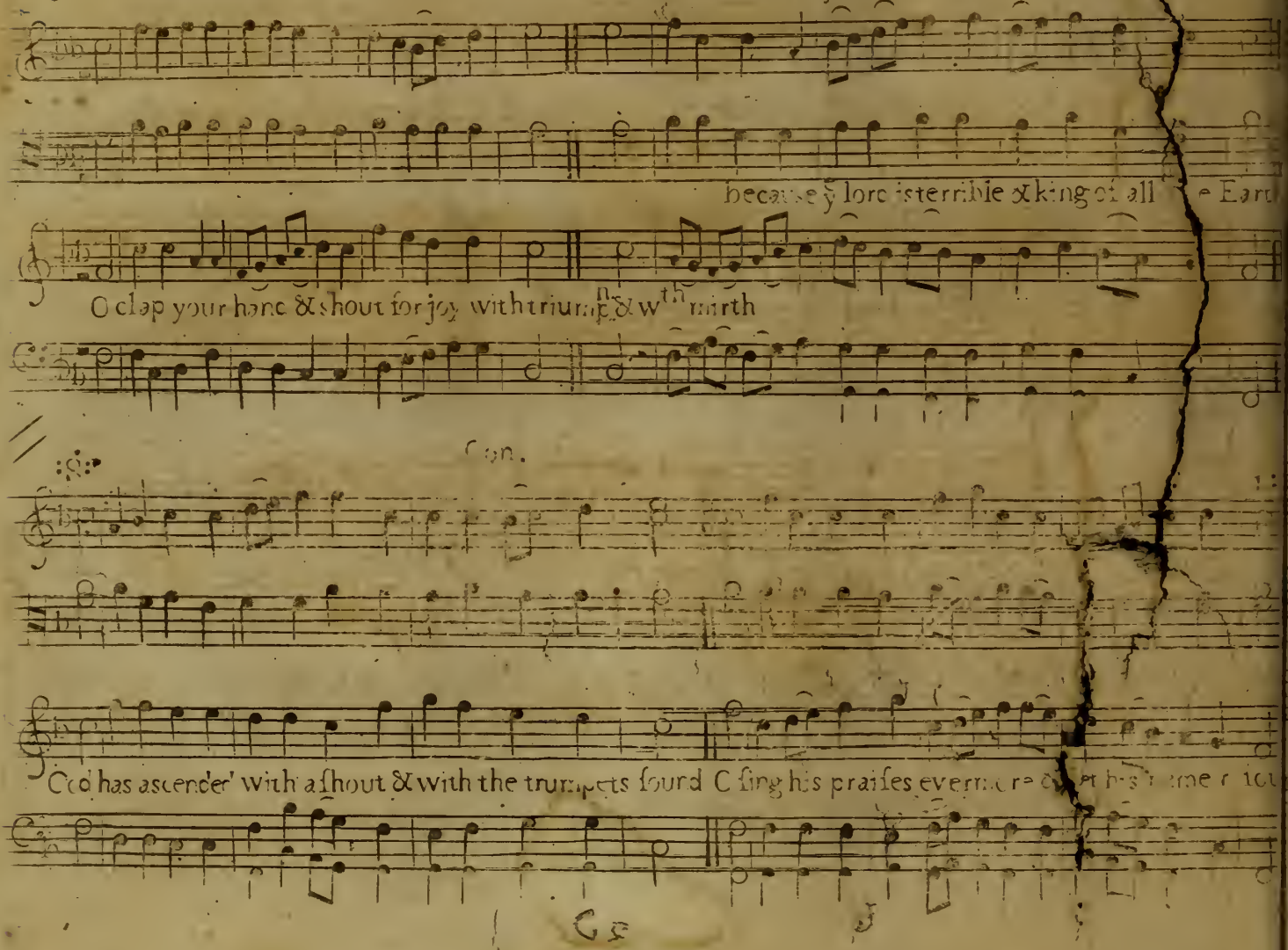


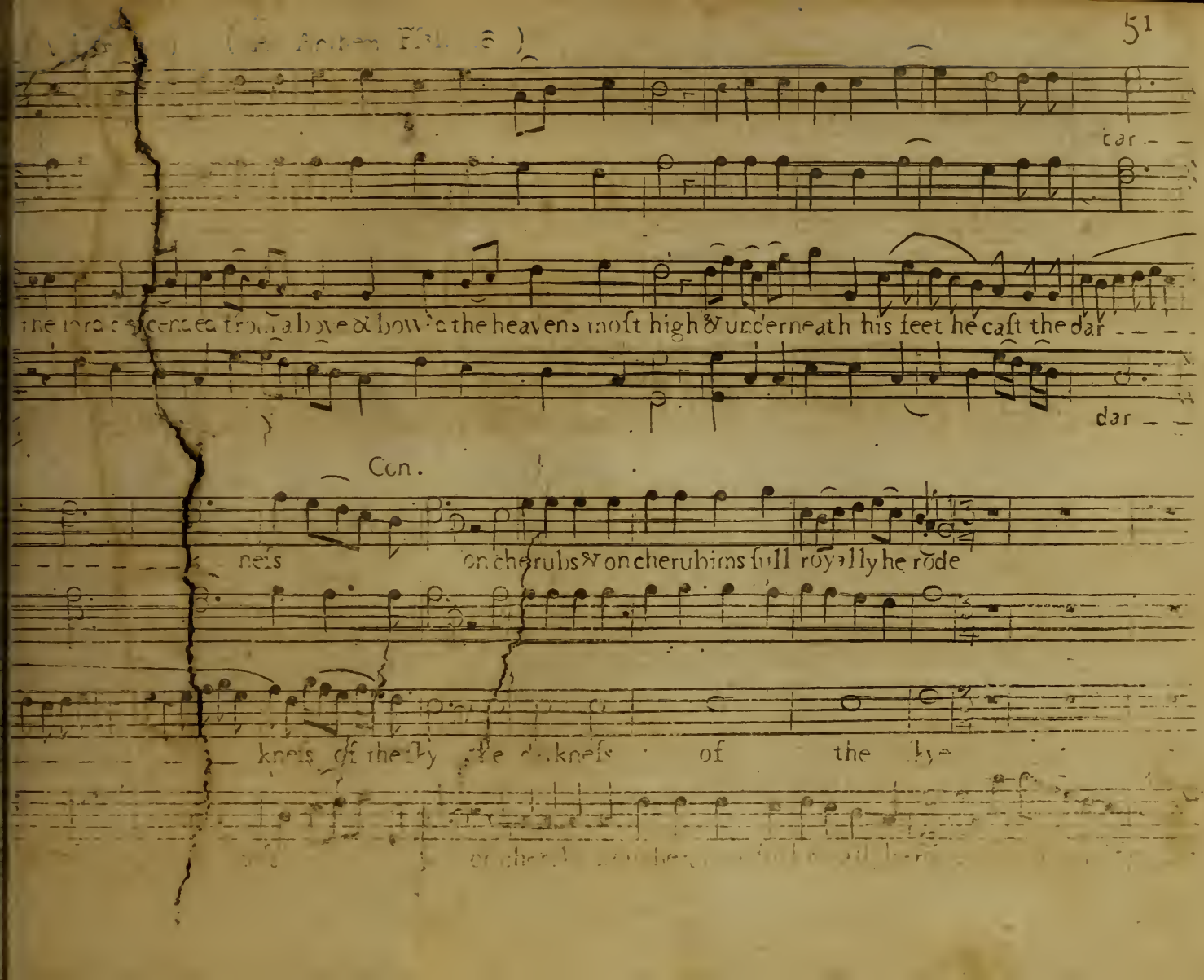
Amherst. Psalm. 136. PM.




As pants the hart for cooling streams
So longs my soul O God for thee
when heated in the chace
And thy refreshing Grace
(Cho.)
(Con.
So pants my soul
So longs my soul O God for the
And th ---- y refreshing Grace
So long my soul o god for the so longs my soul so longs my soul o god for the

Queen. Street. words by P M.




car - -
the lord ascended from above & bow'd the heavens most high & underneath his feet he cast the dar - - -
dar - -
Con.
- - - -

Continued

on cherubs & on cherubims full royally he rode and on the wings of mighty winds

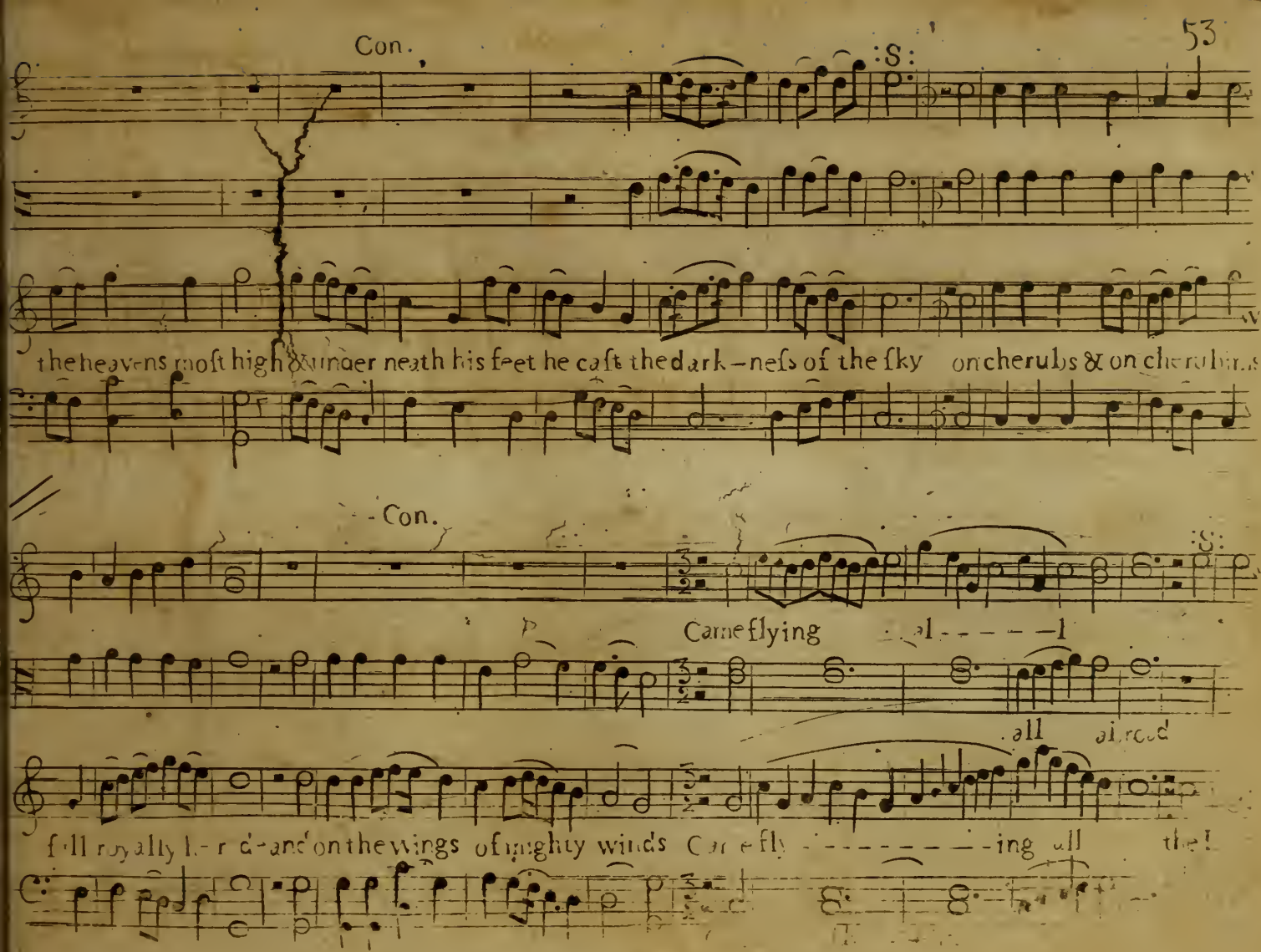
wir gs came flying all abroad

(Grave)

Con.

:S:

Ge ntly - - - - - - - - - - - - - - - - - - ing all abroad the Ld descended from above & bowi

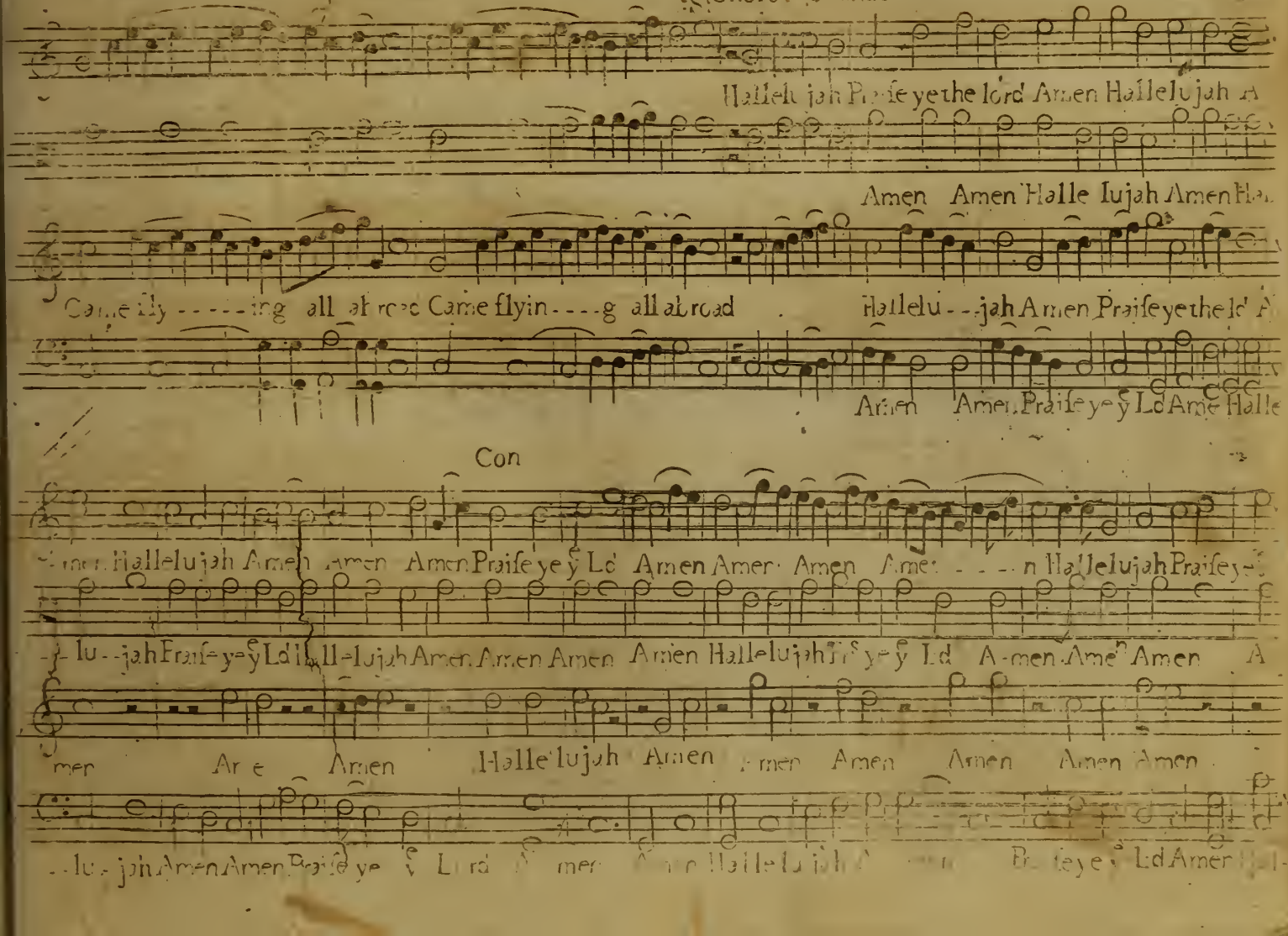

Con.
:S:
the heavens moſt high & under neath his feet he caſt the dark-neſs of the ſky on cherubs & on cherubins
Con.
:S:
Came flying
all
all
full royally ri-d-and on the wings of mighty winds Came fly-ing all the

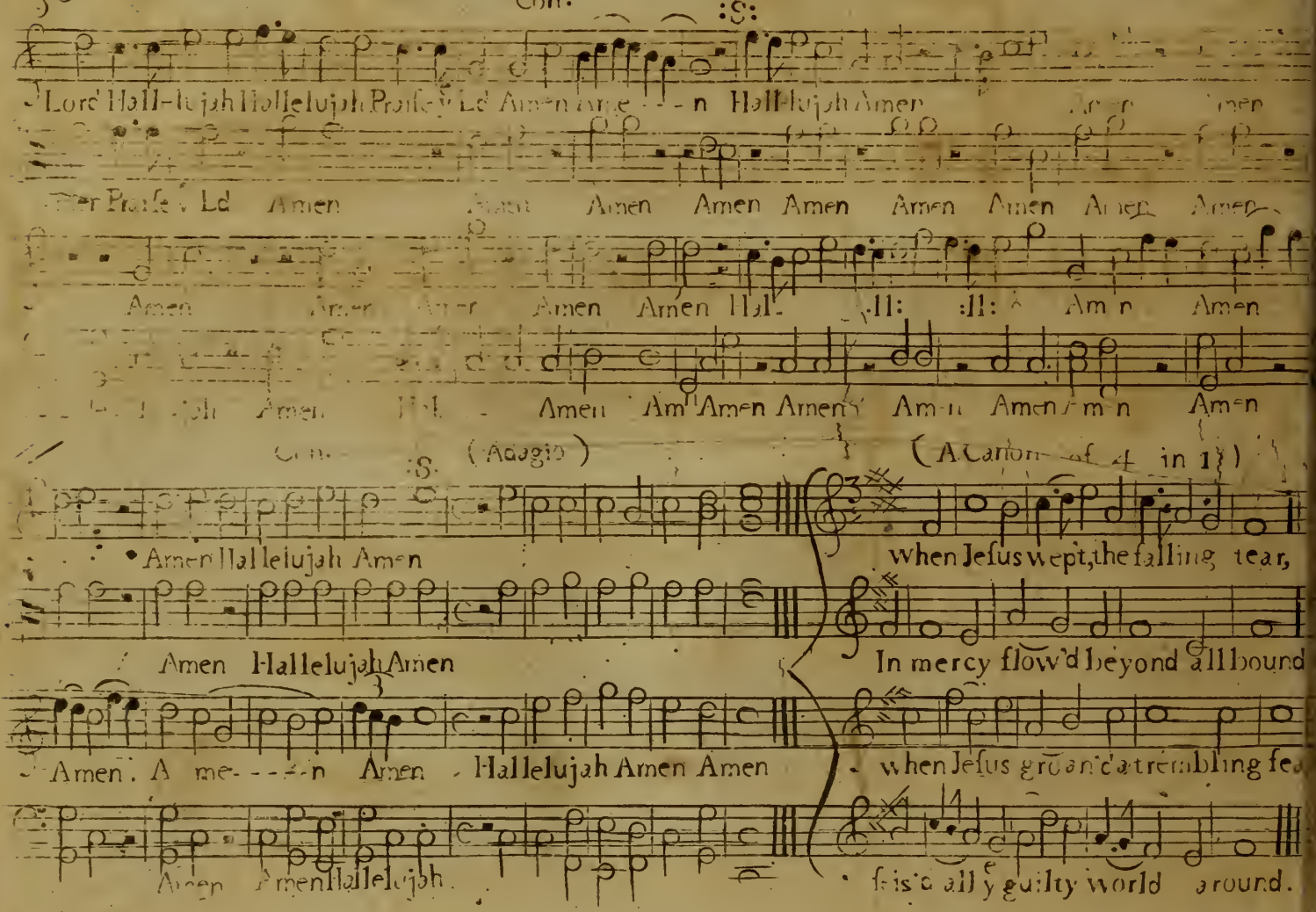
Con.

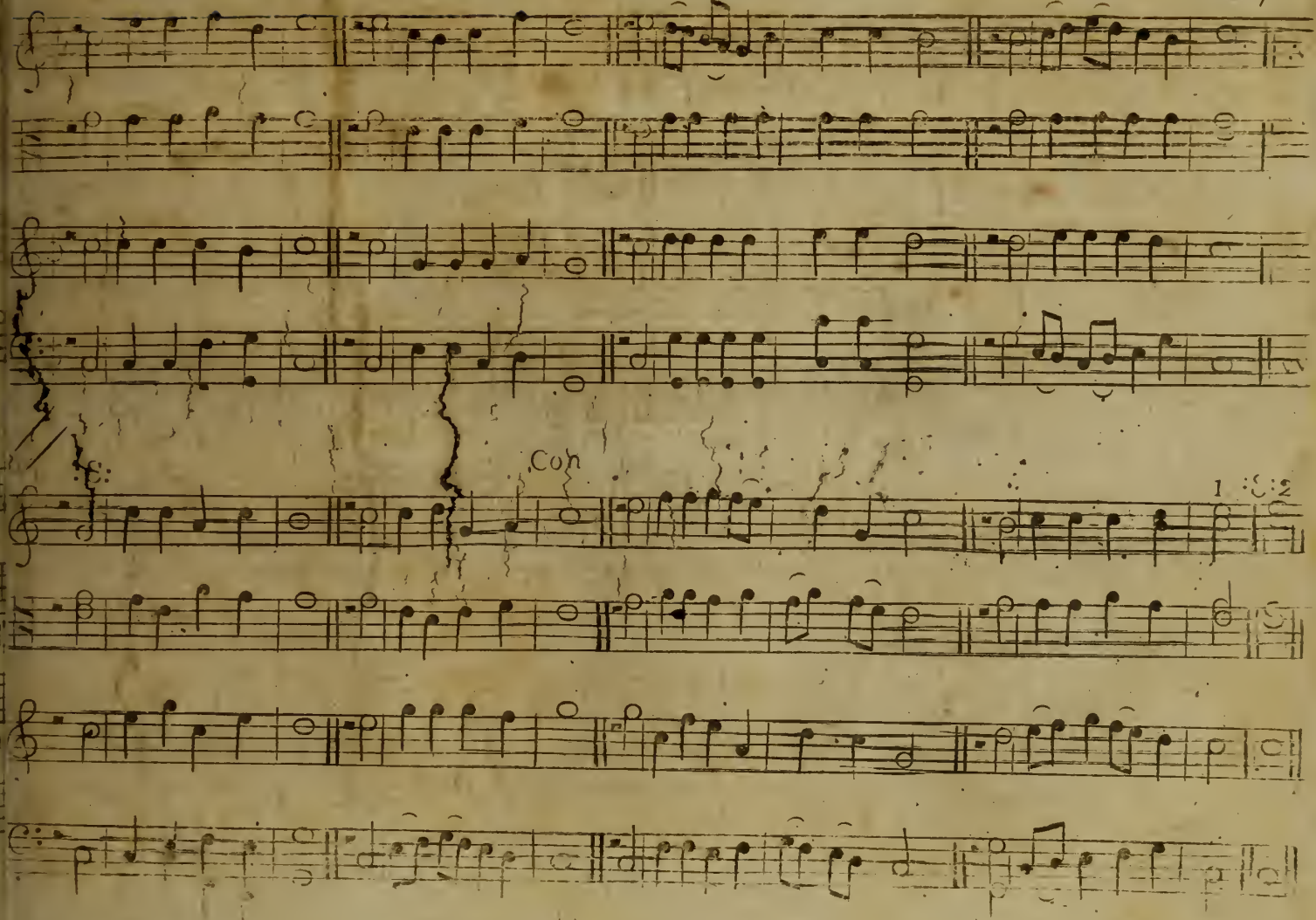
decended from above and bow'd the heavens moſt high and unaerneath his feet he caſt the dar - - - - - k

Con.

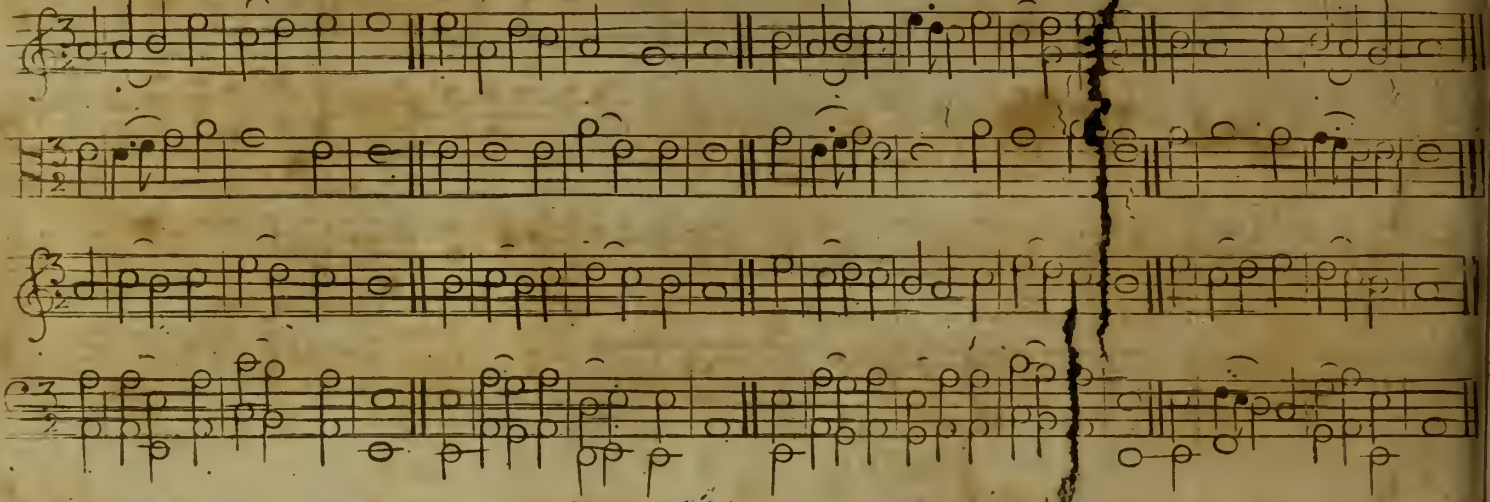
ceſs of the ſky on cherubs and on cherubims full roy - - - - ally he rode & on the wings of mighty winds


Halleh jah Praise ye the lord Amen Hallelujah A
Amen Amen Halle lujah Amen Ha
Came fly - - - - - ing all abroad Came flyin - - - - g all abroad Hallelu - - jah Amen Praise ye the ld A
Amen Amen Praise ye y Ld Ame Halle
Con
men Hallelujah Amen Amen Amen Praise ye y Ld Amen Amen Amen Amen - - - - n Hallelujah Praise ye
- lu - jah Praise ye y Ld Hallelujah Amen Amen Amen Amen Hallelujah Praise ye y Ld A - men Amen Amen A
men Ar e Amen Halle lujah Amen Amen Amen Amen Amen Amen
- lu - jah Amen Amen Praise ye y Lord Amen Amen Hallelujah Praise ye Ld Amen Hal-

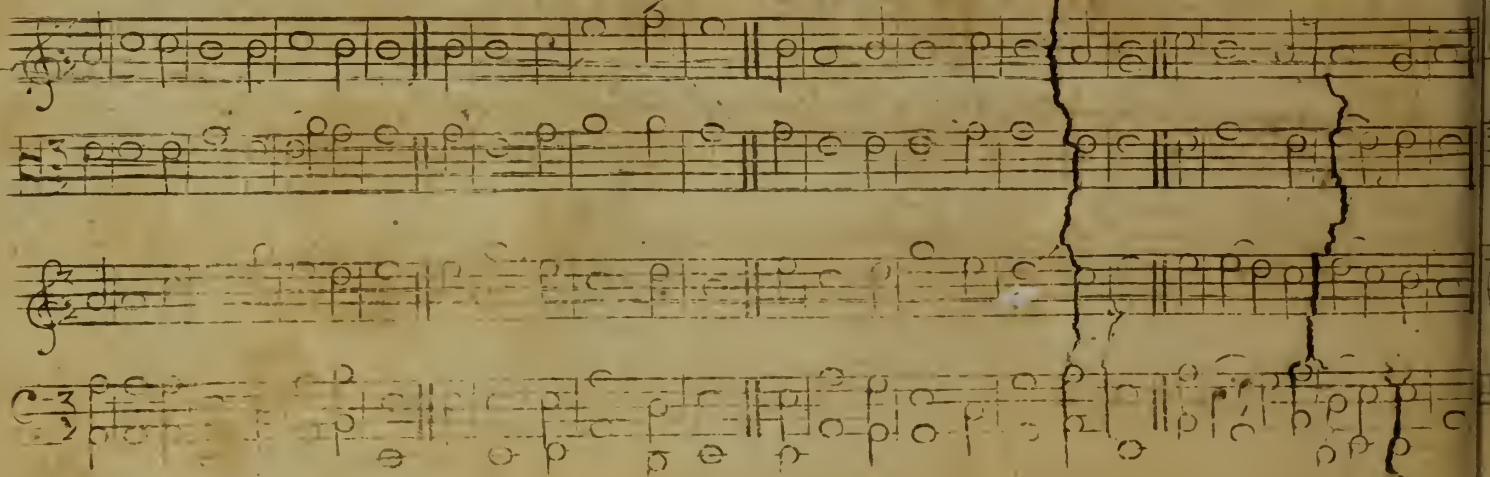

Con.
:S:
Lord Hall-lujah Hallelujah Praise Ld Amen Amen Hallelujah Amen
Praise Ld Amen Amen Amen Amen Amen Amen Amen Amen
Amen Amen Amen Amen Amen Hal- -ll: :ll: Amen Amen
Amen Amen Amen Amen Amen Amen Amen Amen
Con. :S: (Adagio) (A Canon of 4 in 1)
Amen Hallelujah Amen
when Jesus wept, the falling tear,
Amen Hallelujah Amen
In mercy flow'd beyond all bound
Amen. A me- -n Amen Hallelujah Amen Amen
when Jesus groan'd a trembling fe
Amen Amen Hallelujah.
fe is d all y guilty world around.

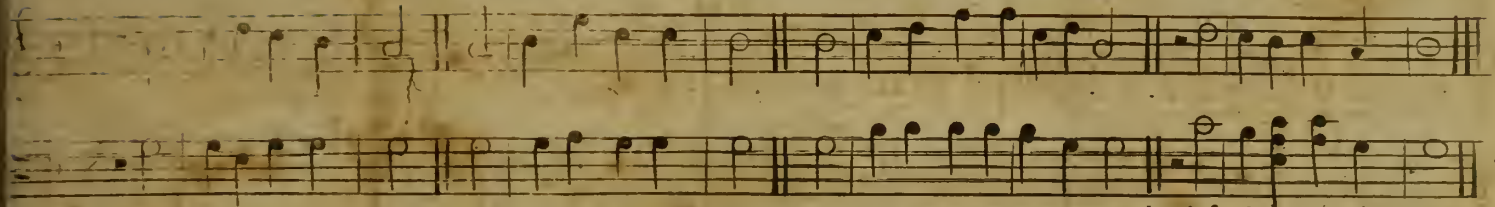

Con
1
2

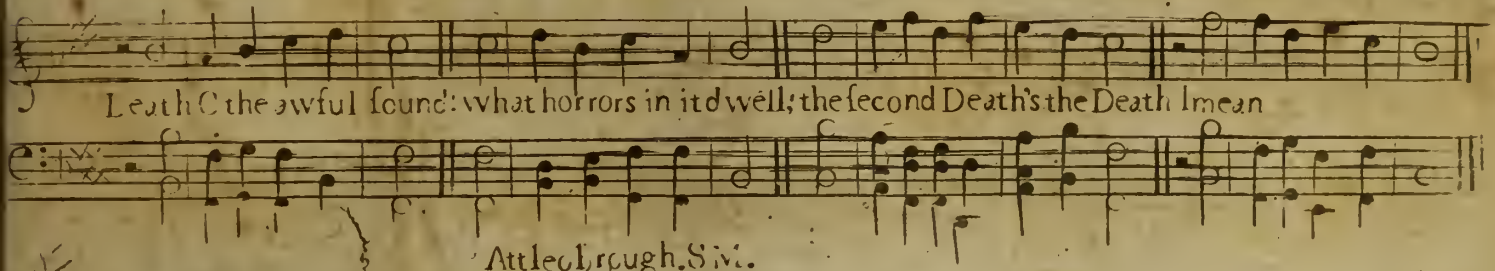
Freedom. SM.



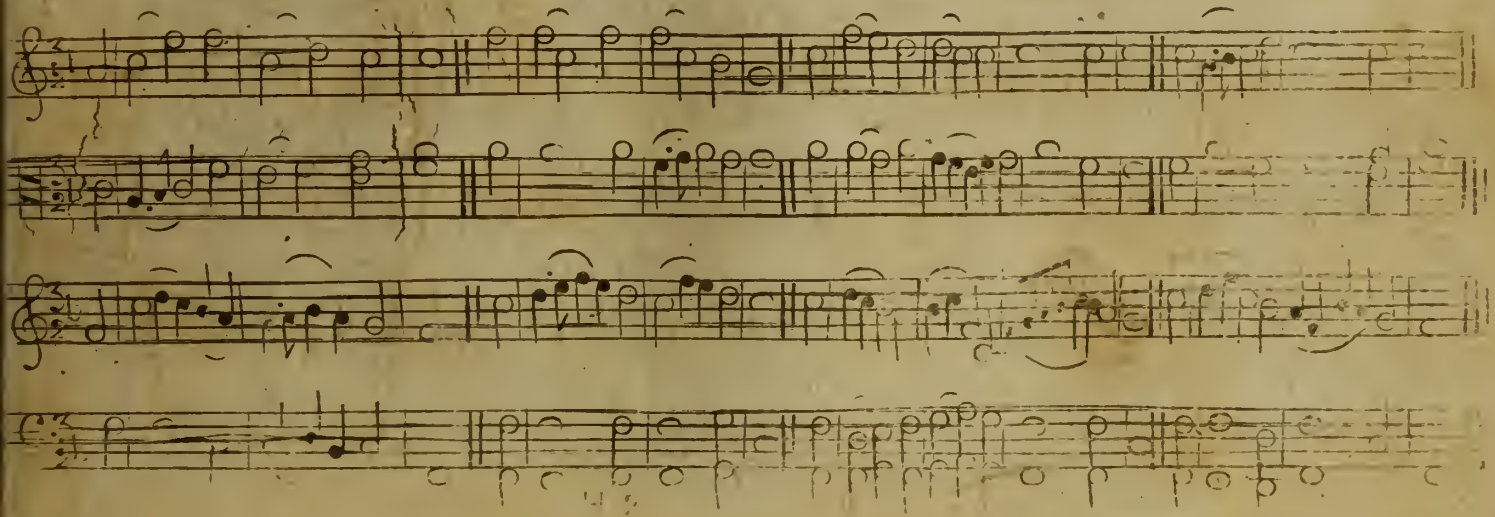
Tower Hill. CM.



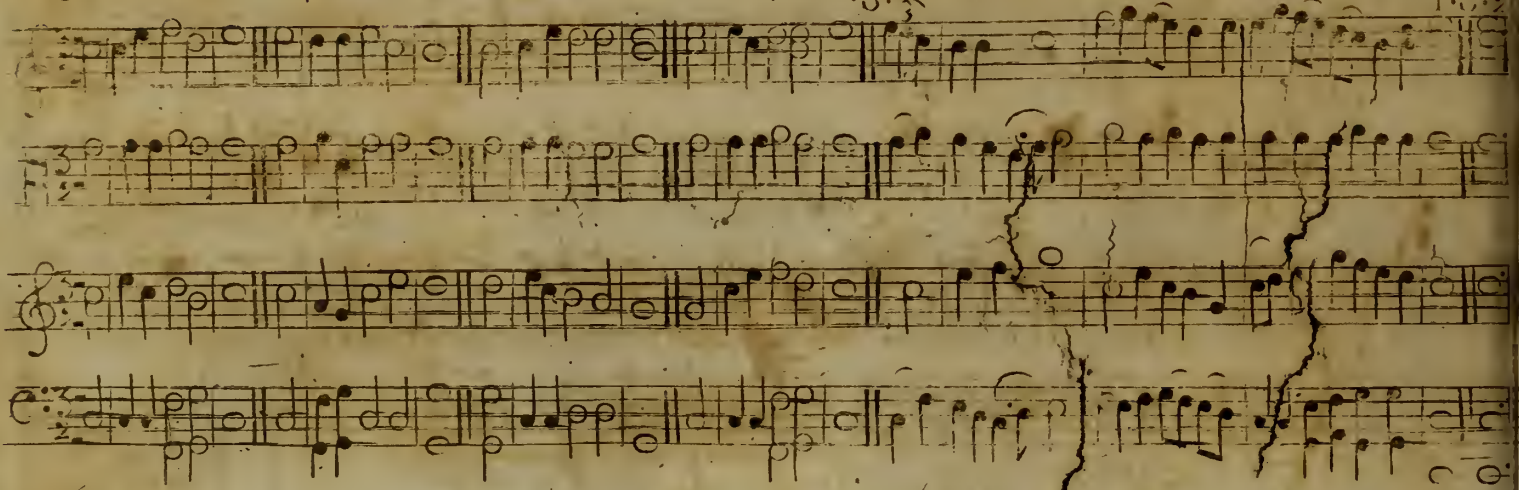




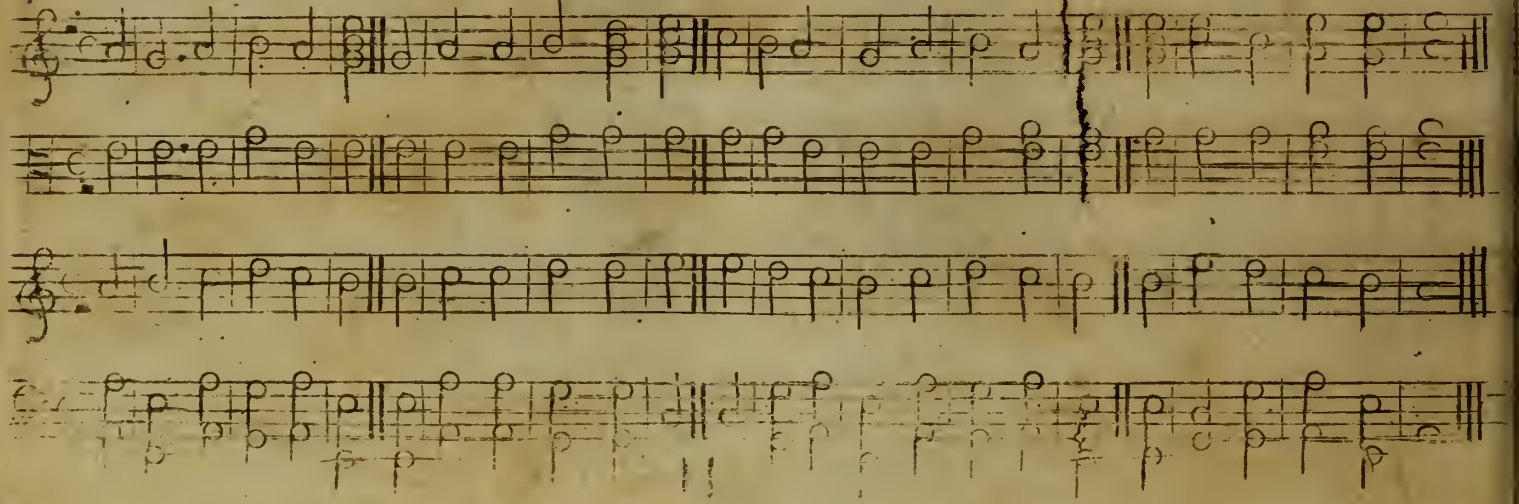
Attleborough. S M.



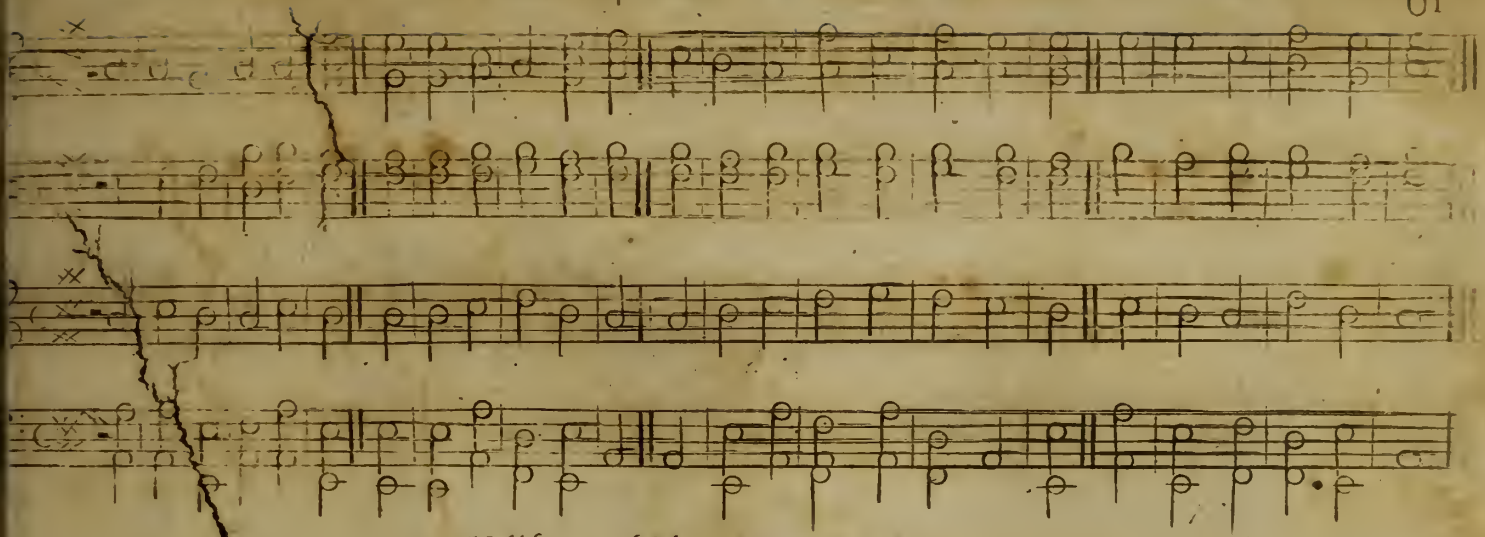
PM.



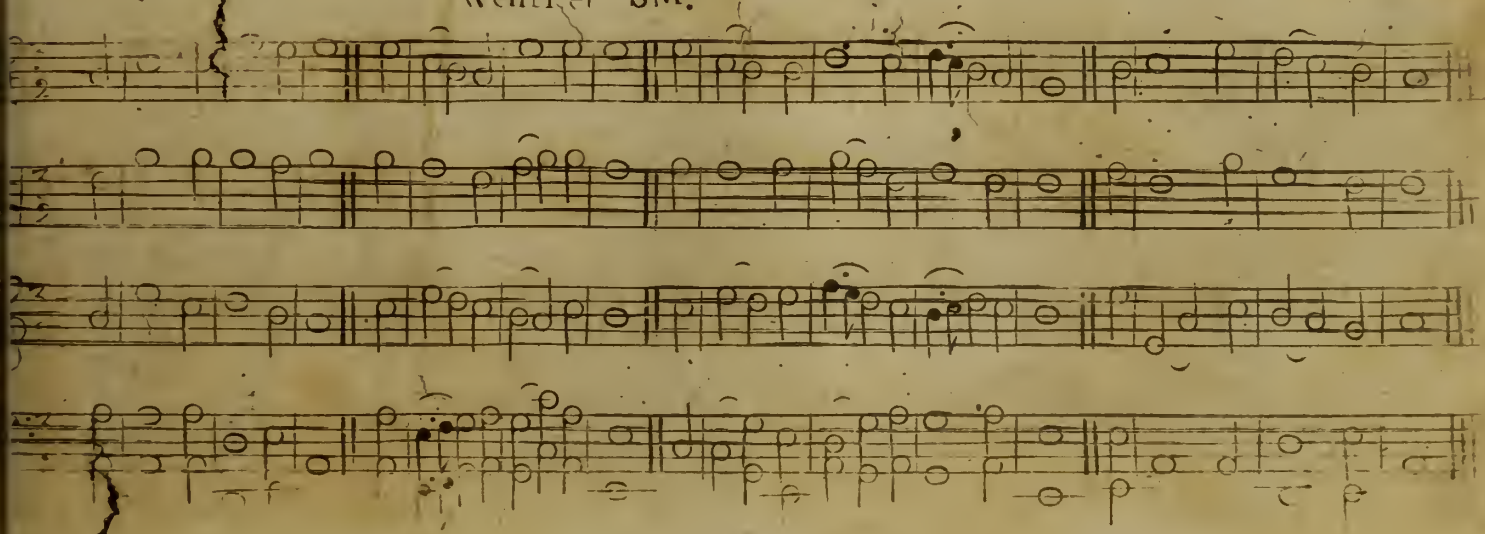
Afia SM.



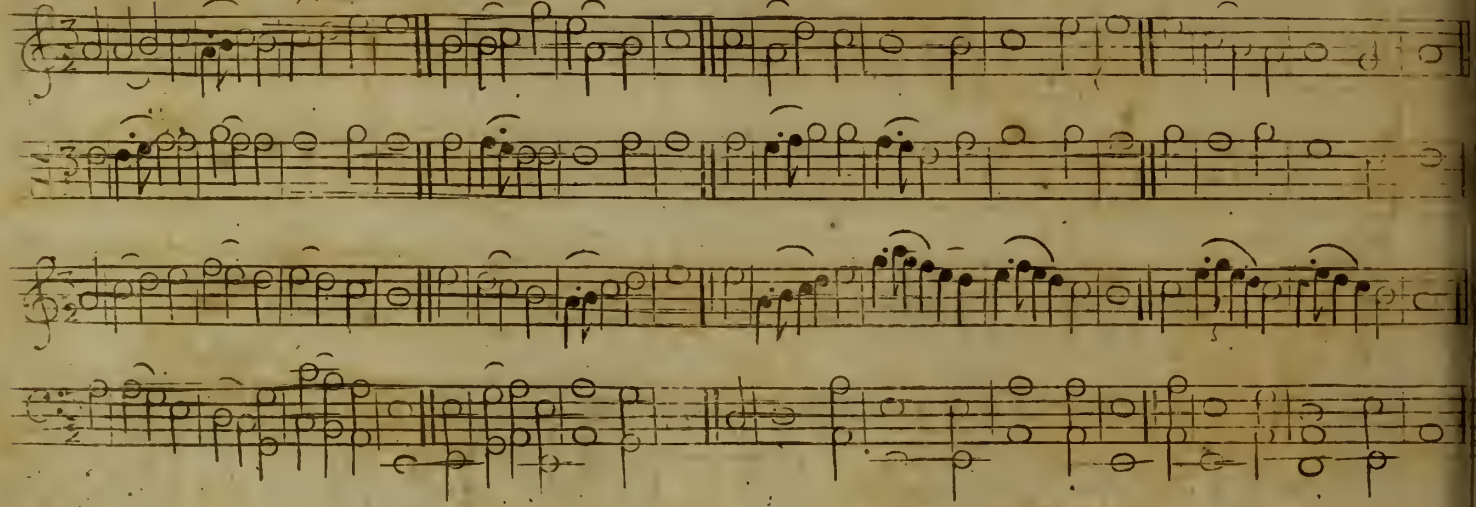
Friendſhip S M.



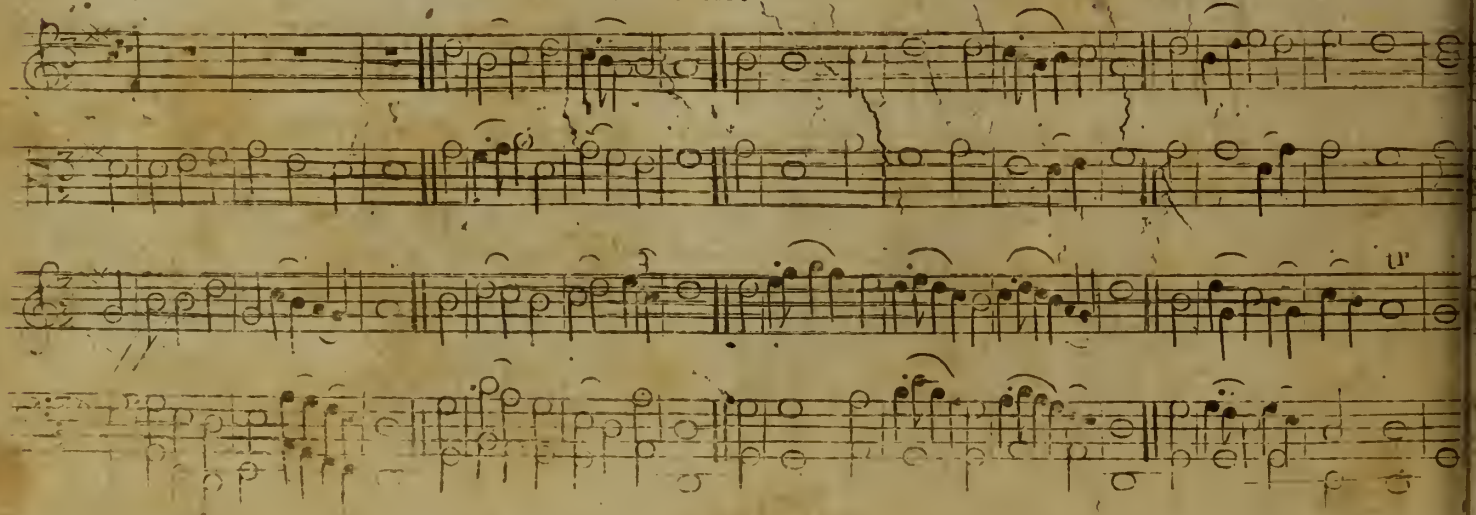
Wellfleet SM.

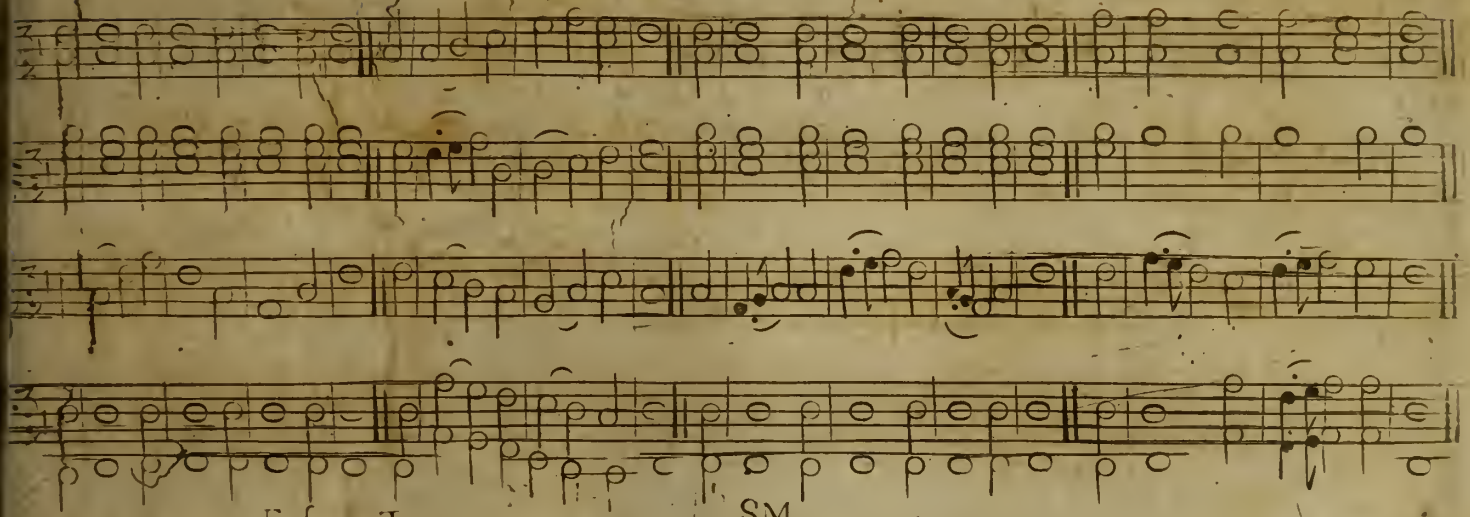


Eastham. C.M.

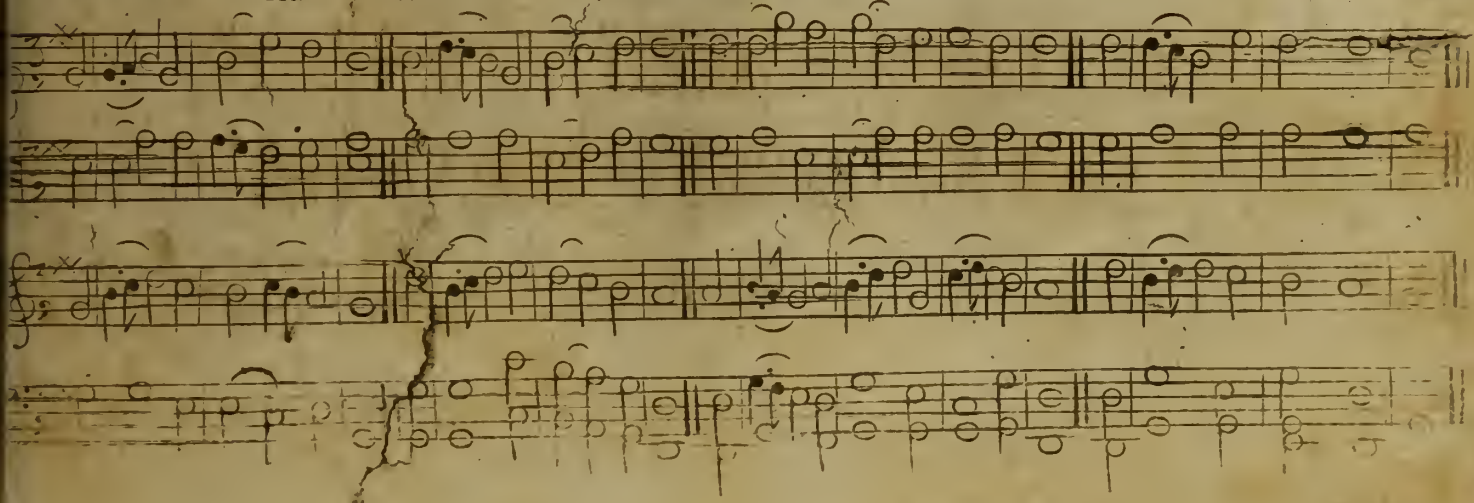


Middlesex. C.M.



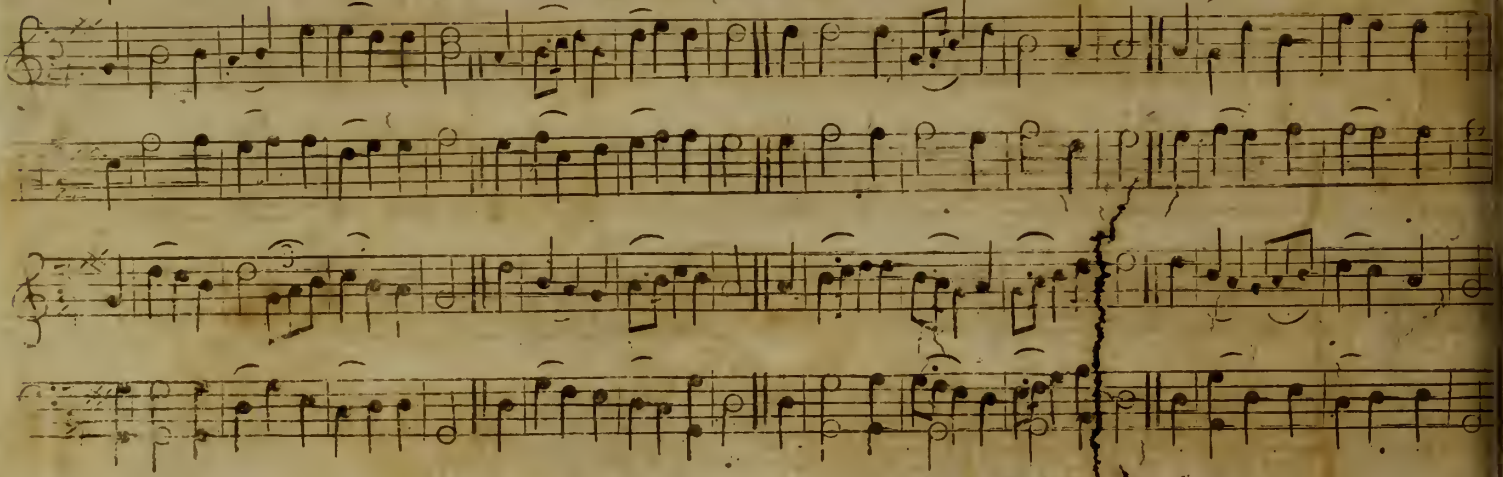


East-Town. SM.

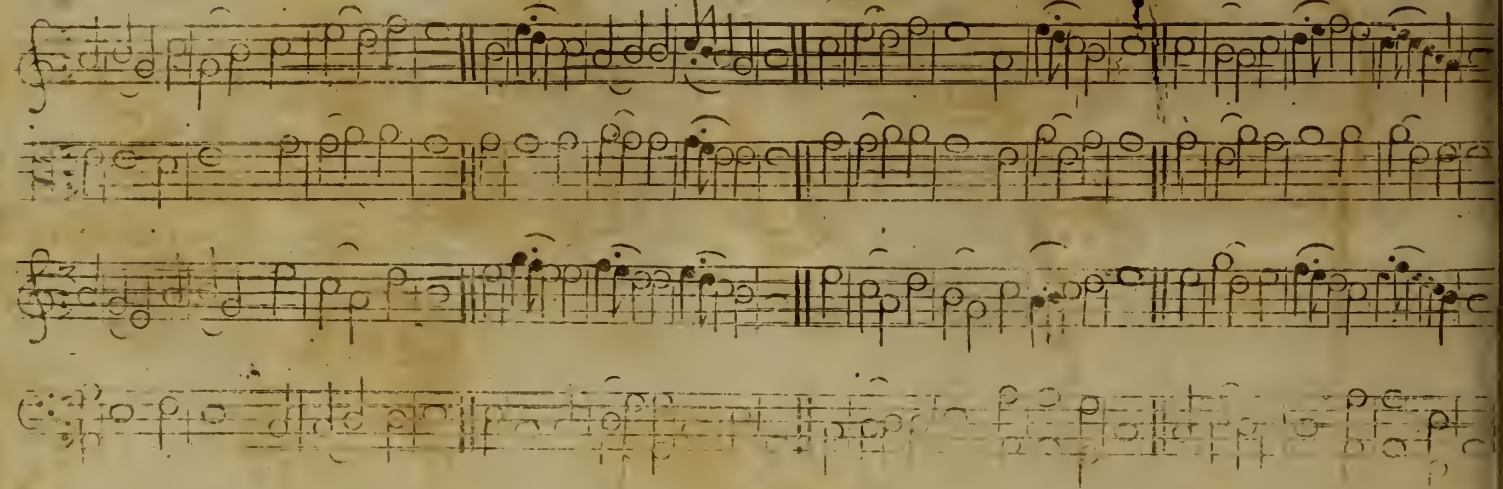


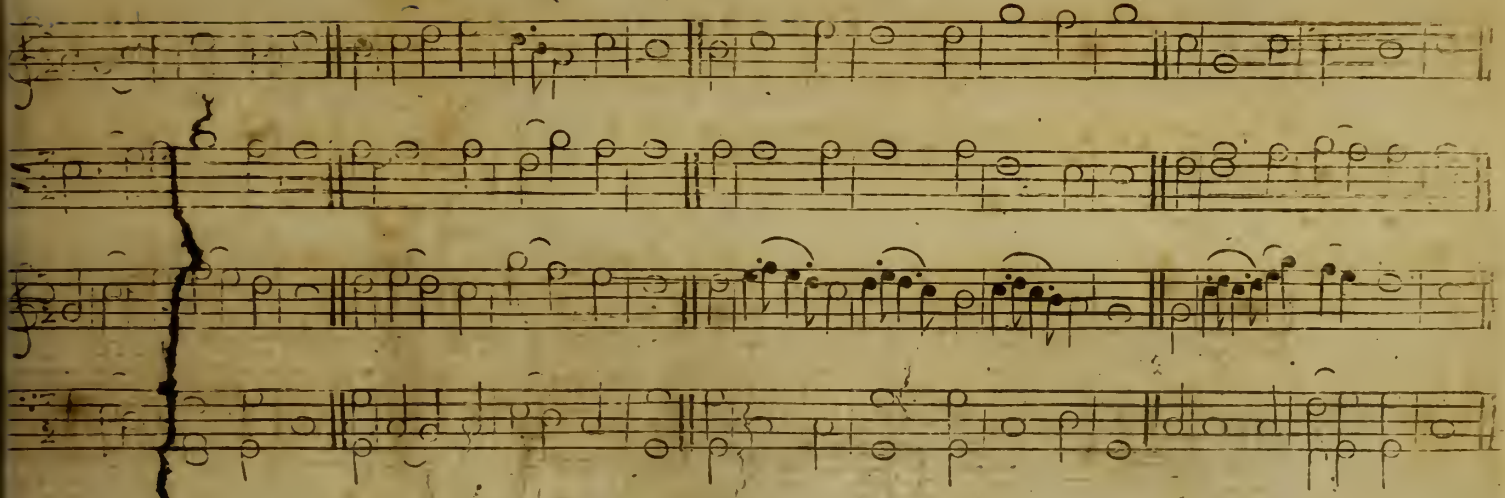
64.

Uxbridge. CM.

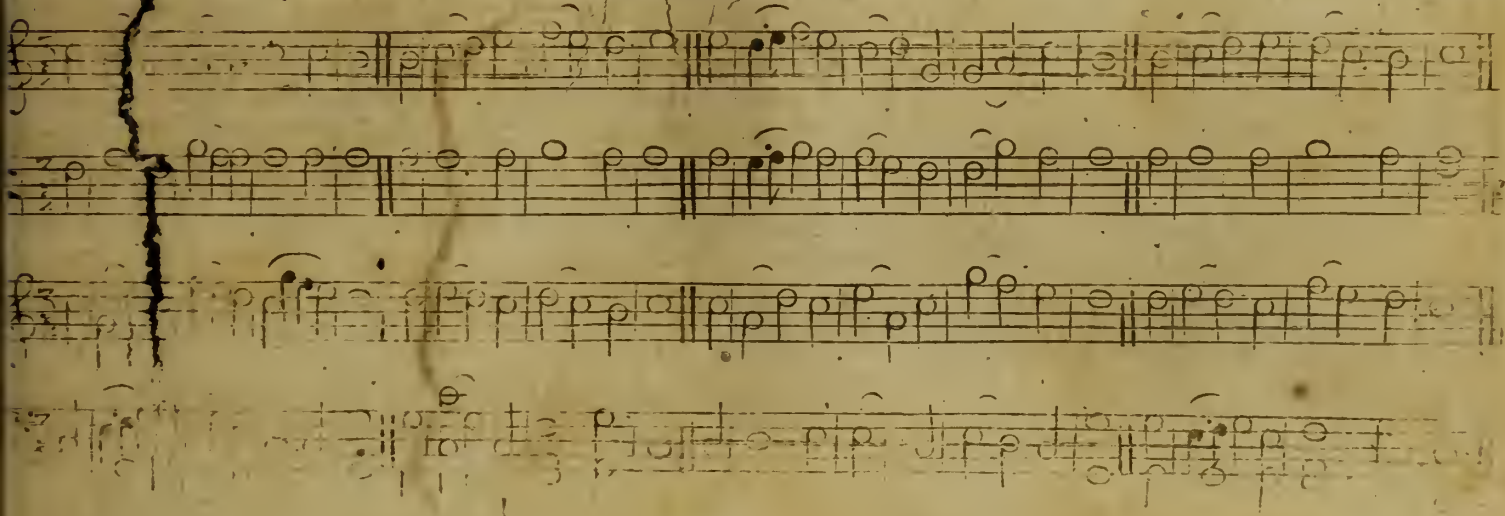


Jamaica. LM.

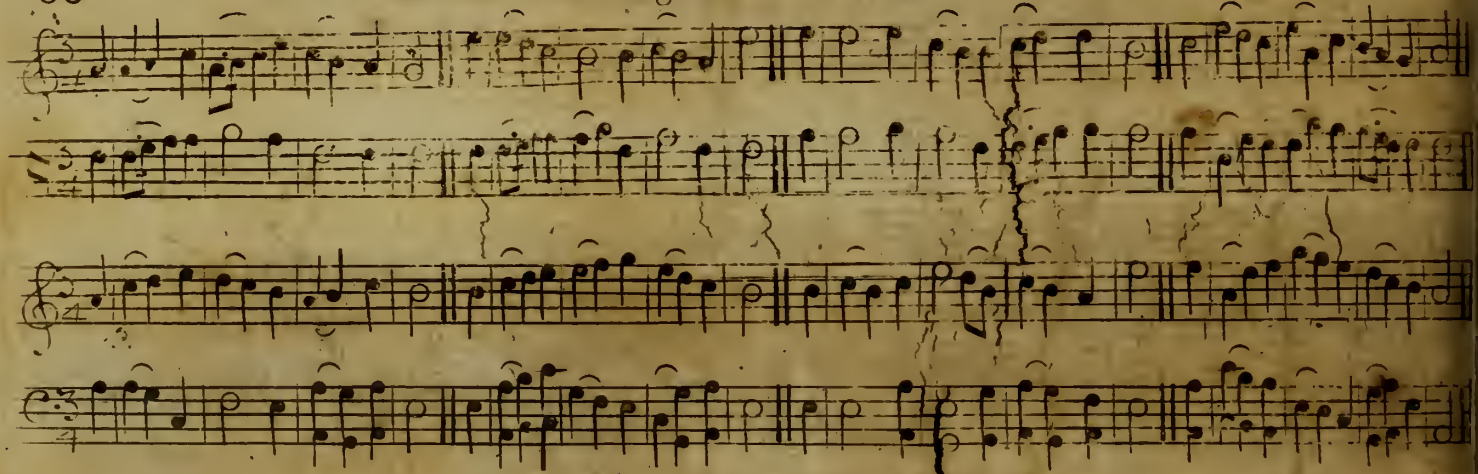




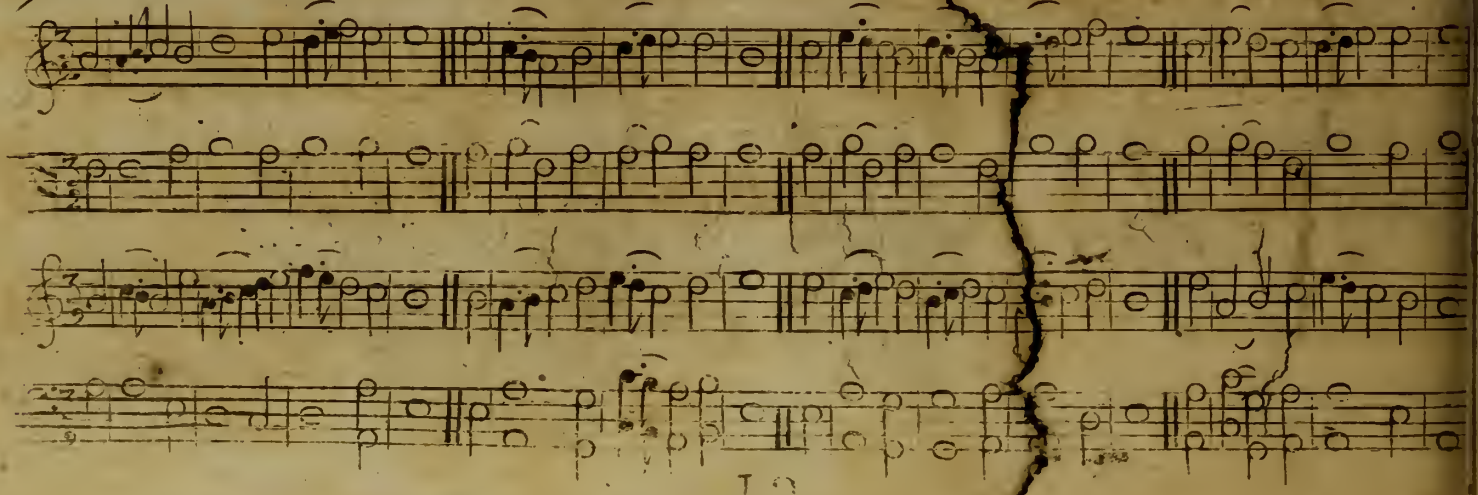
Ardwyer.CM.

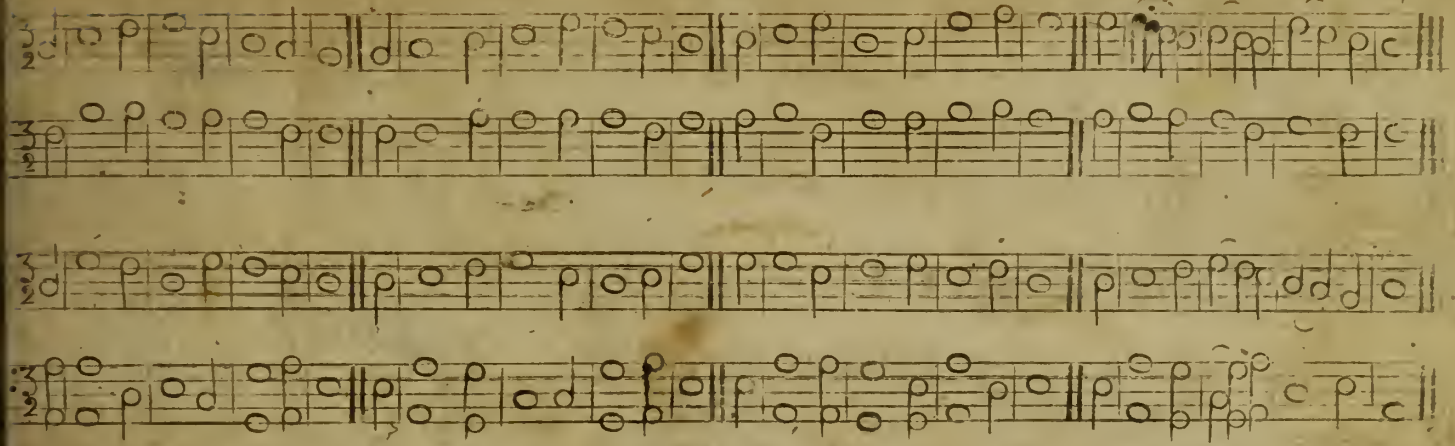


Lexington. L.M.

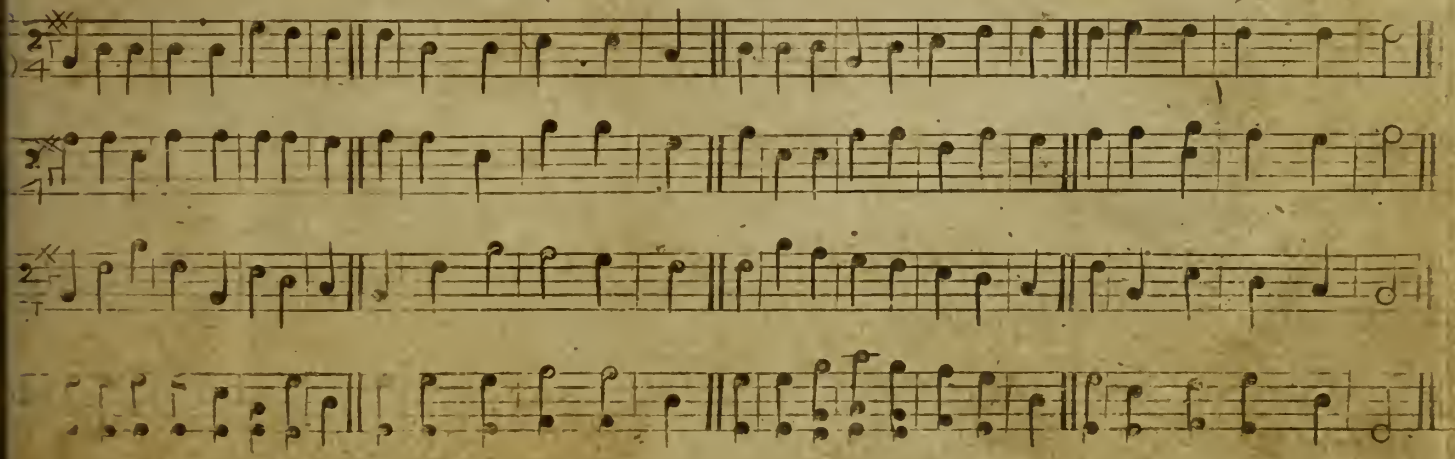


Summer Street. C.M.

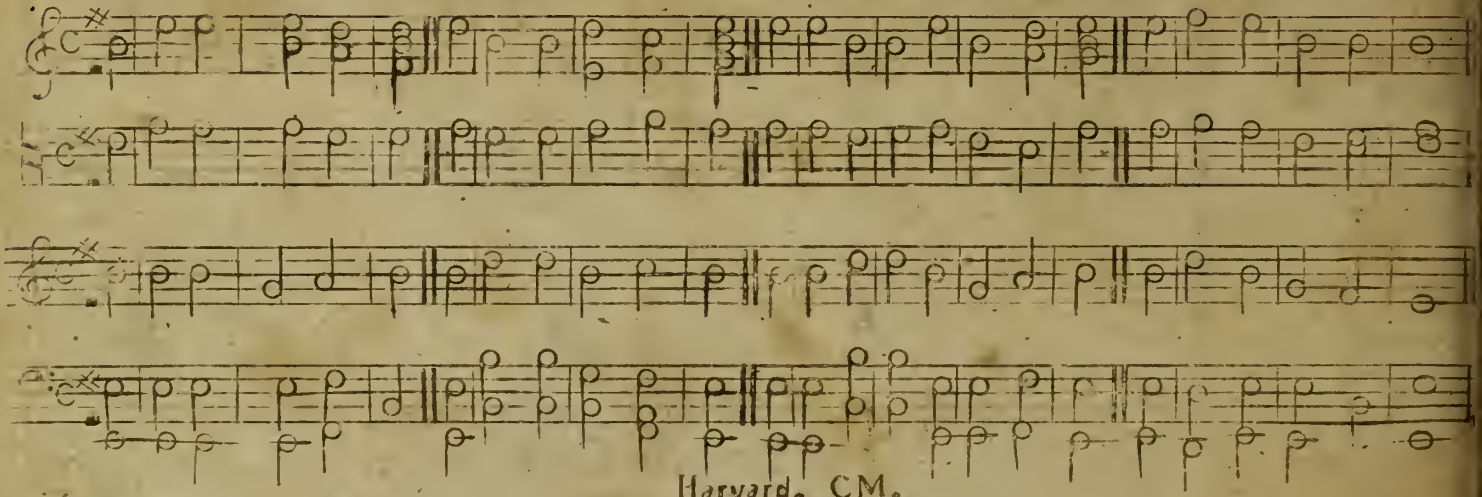




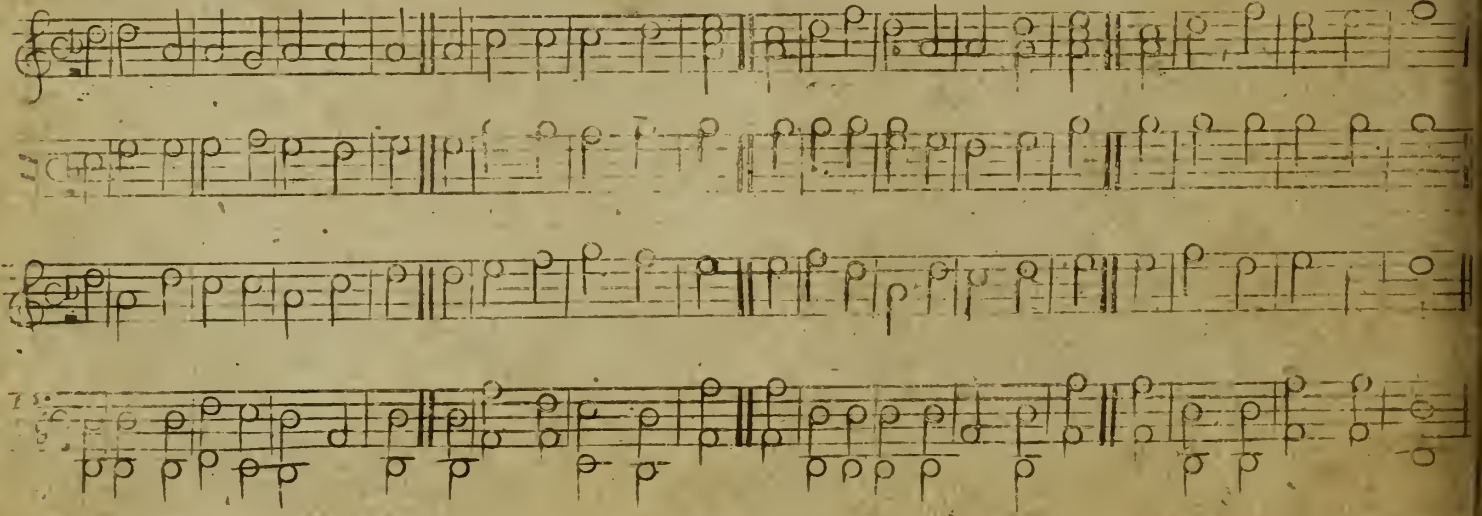
Barre. C.M.



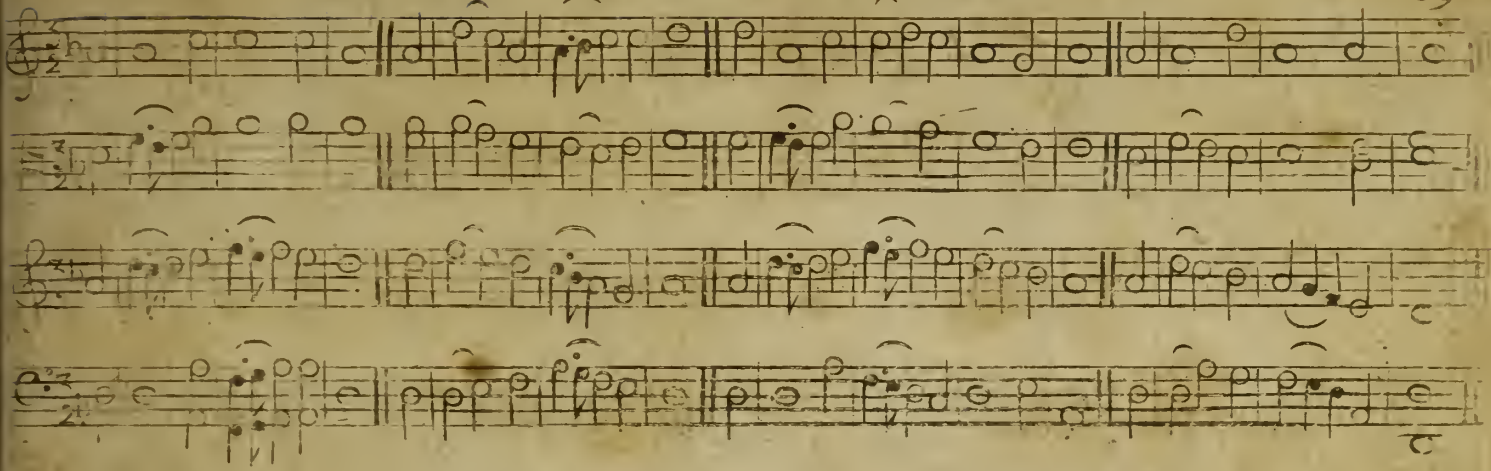
Nutfield. SM.



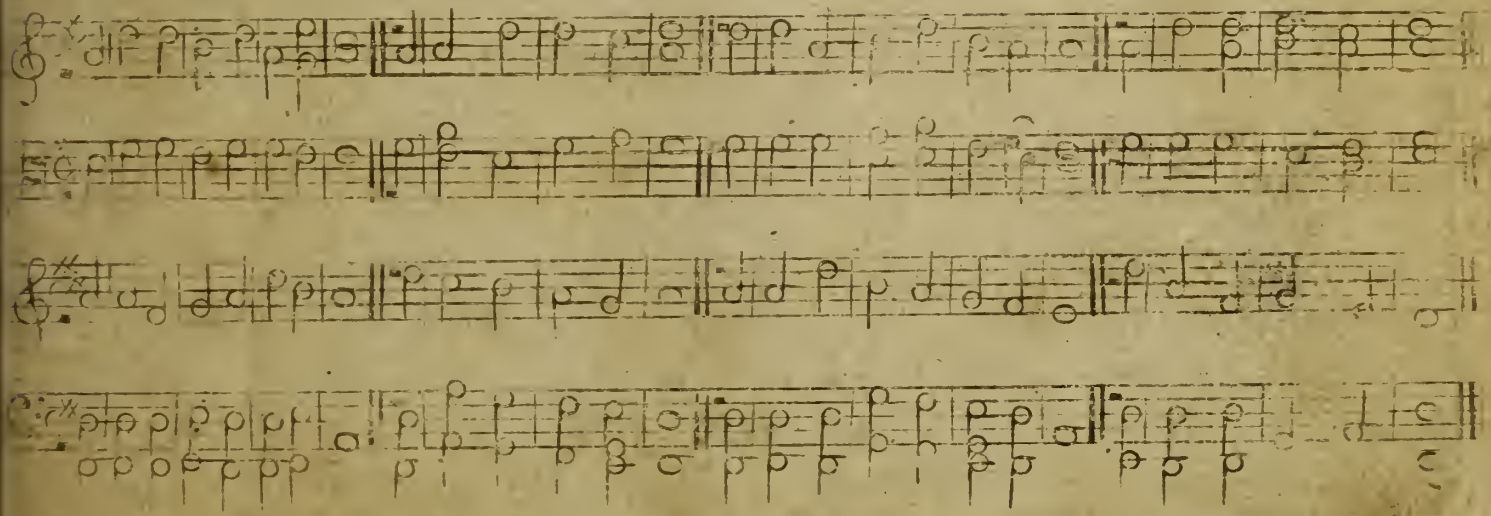
Harvard. CM.



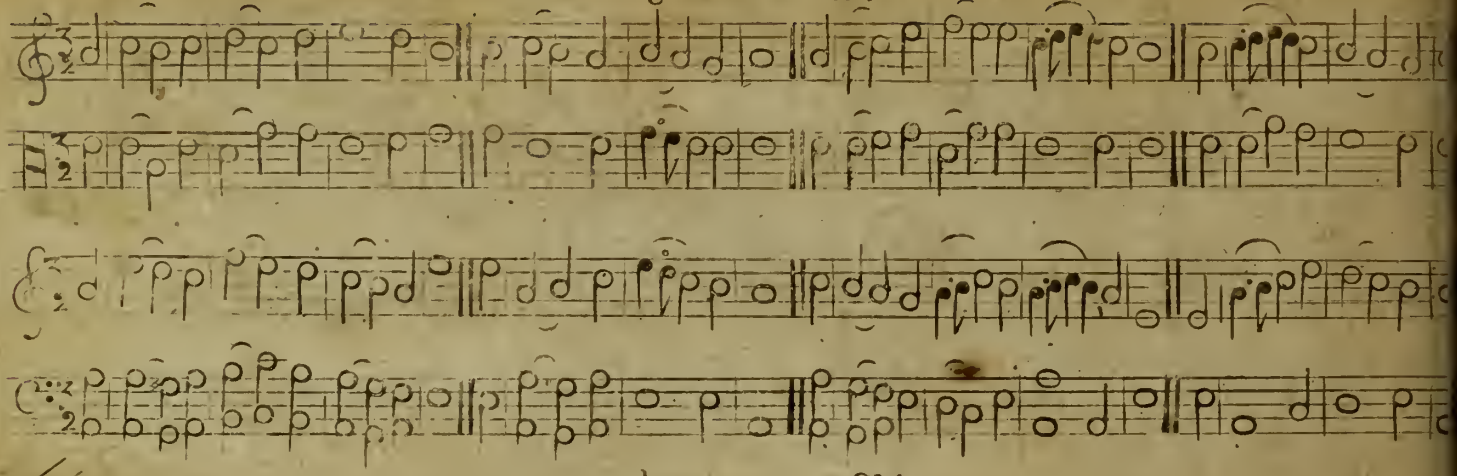
Hebron. SM.



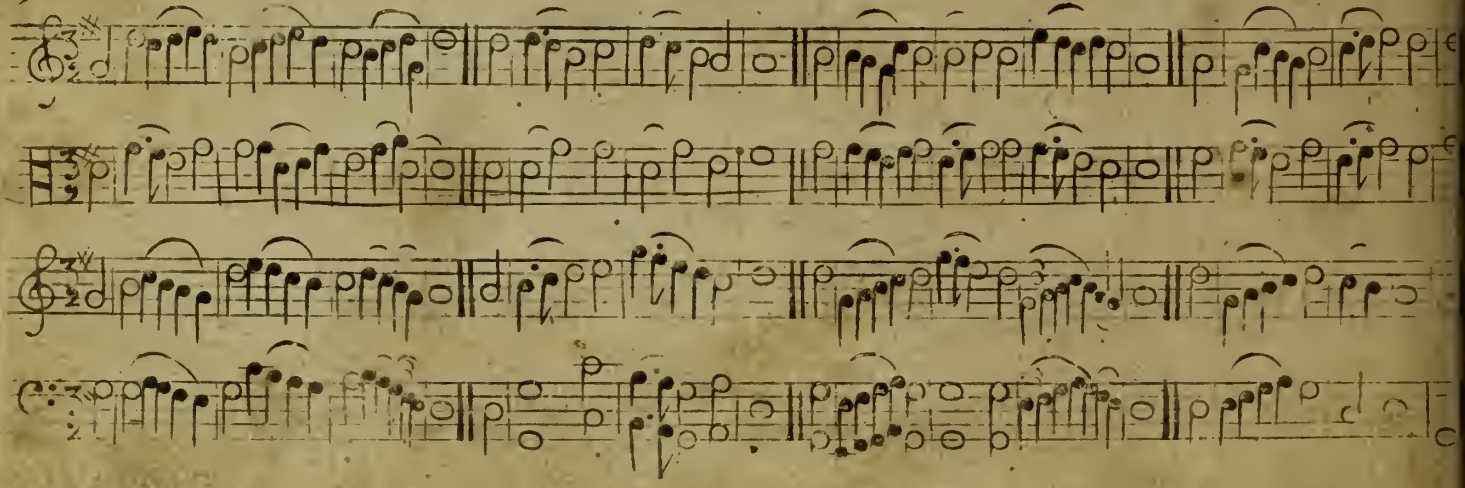
New North. CM.



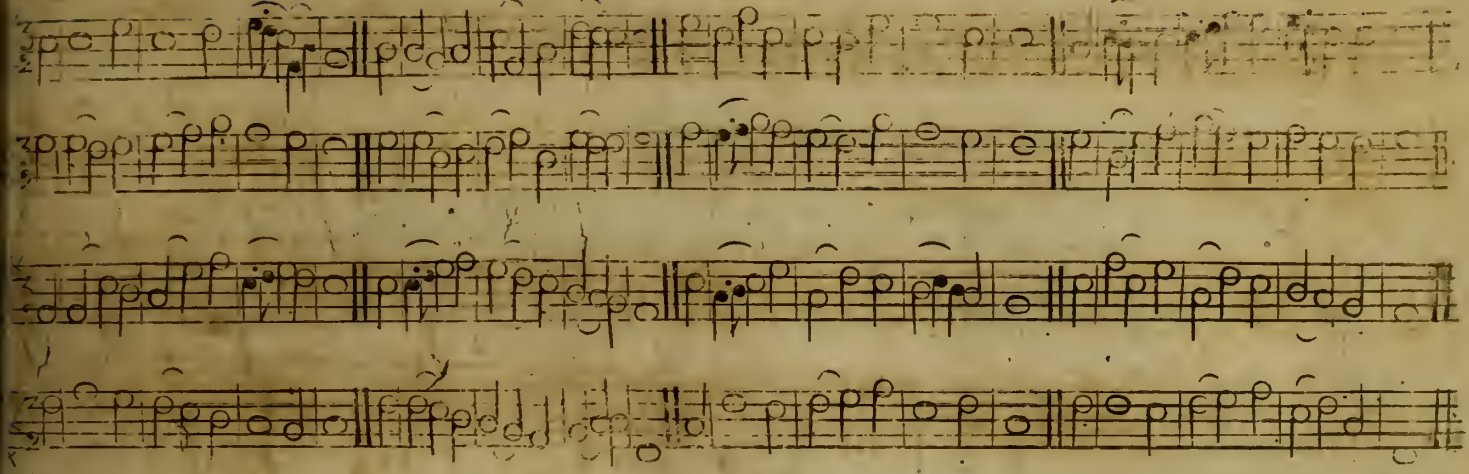
Dighton. CM



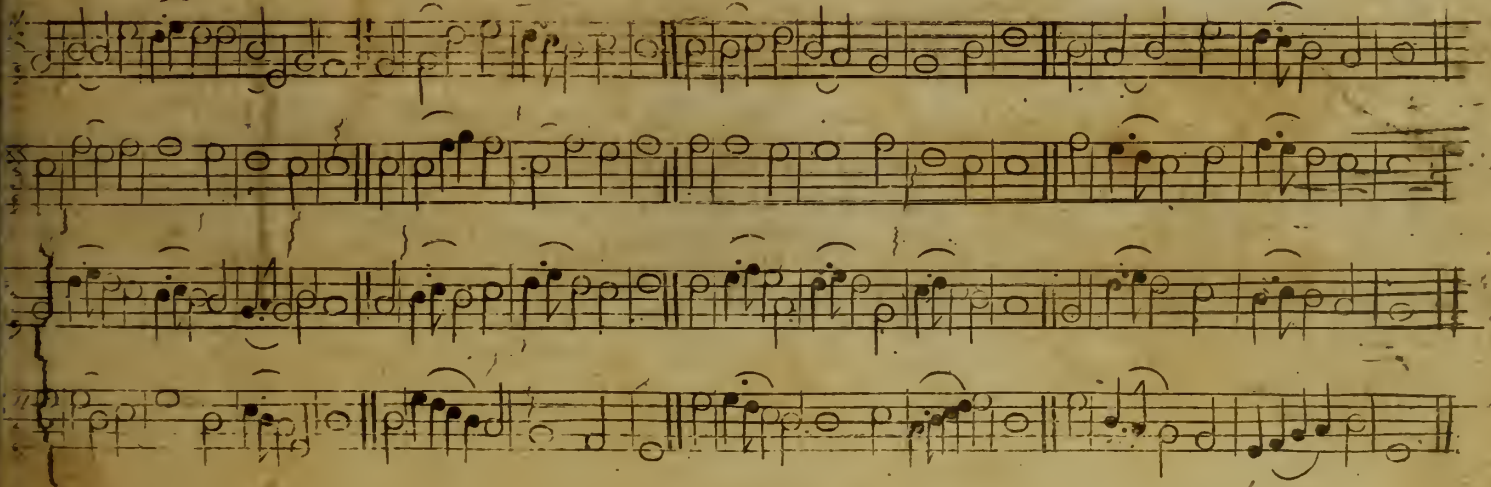
Lynn. CM



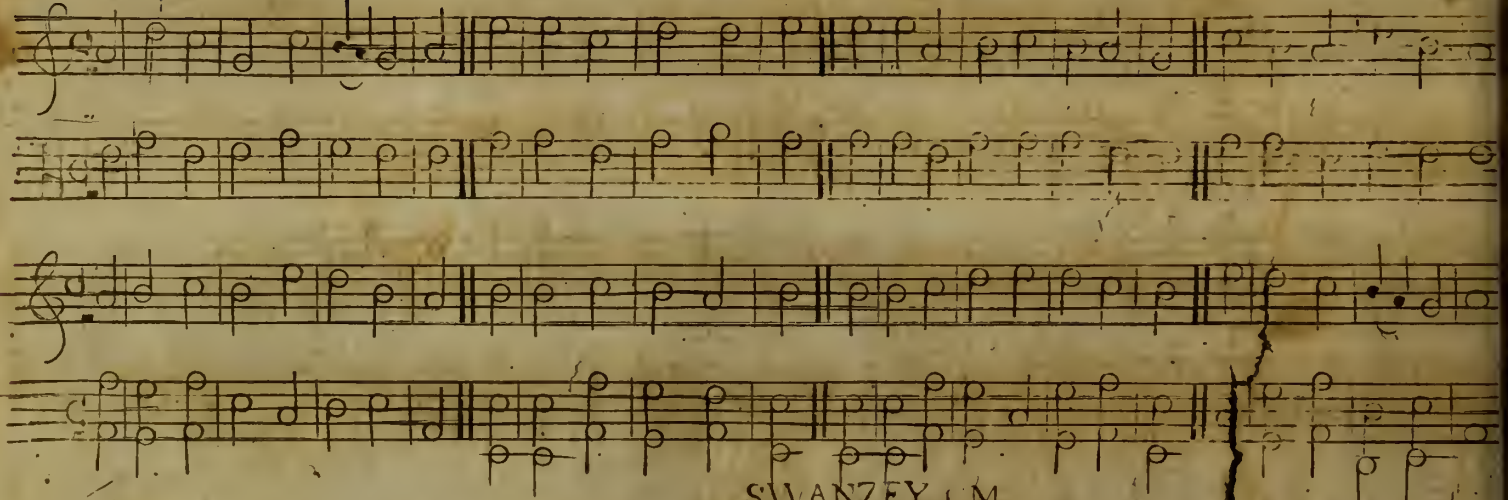
Westfield. L. M



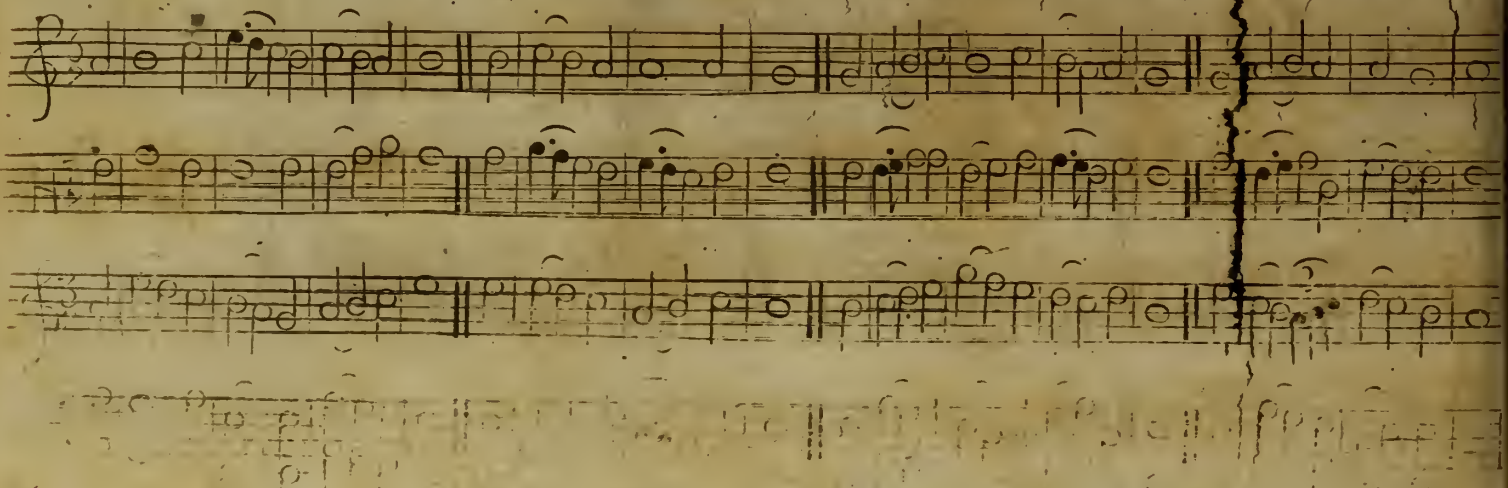
Marblehead. C. M



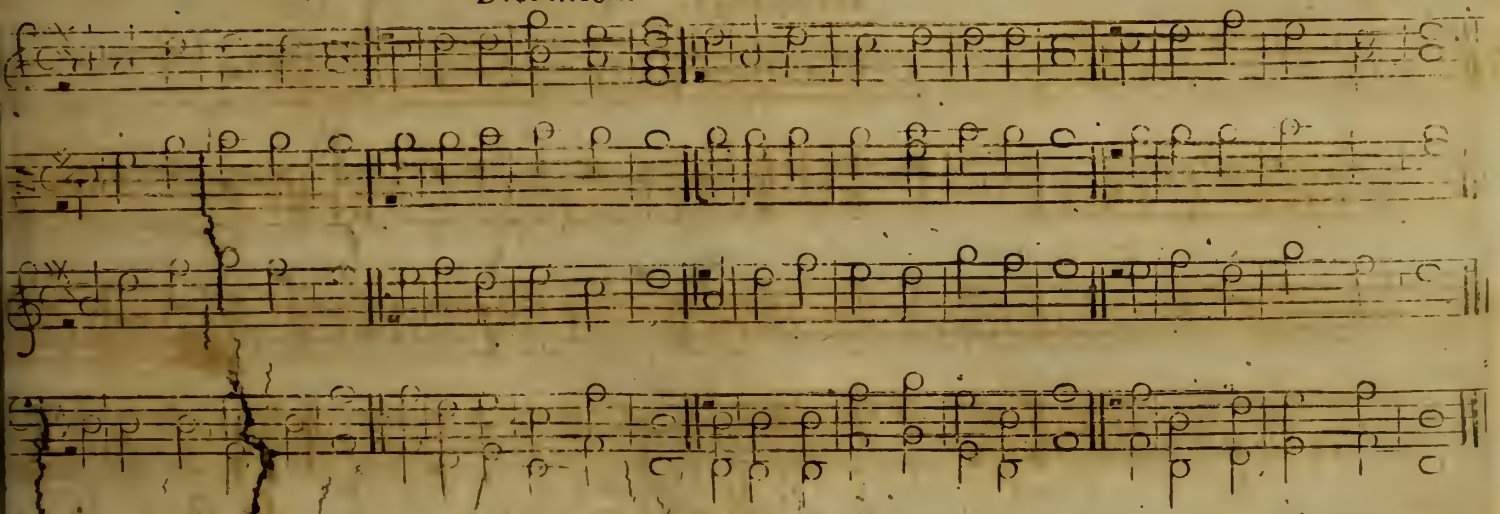
IPSWICH. CM.



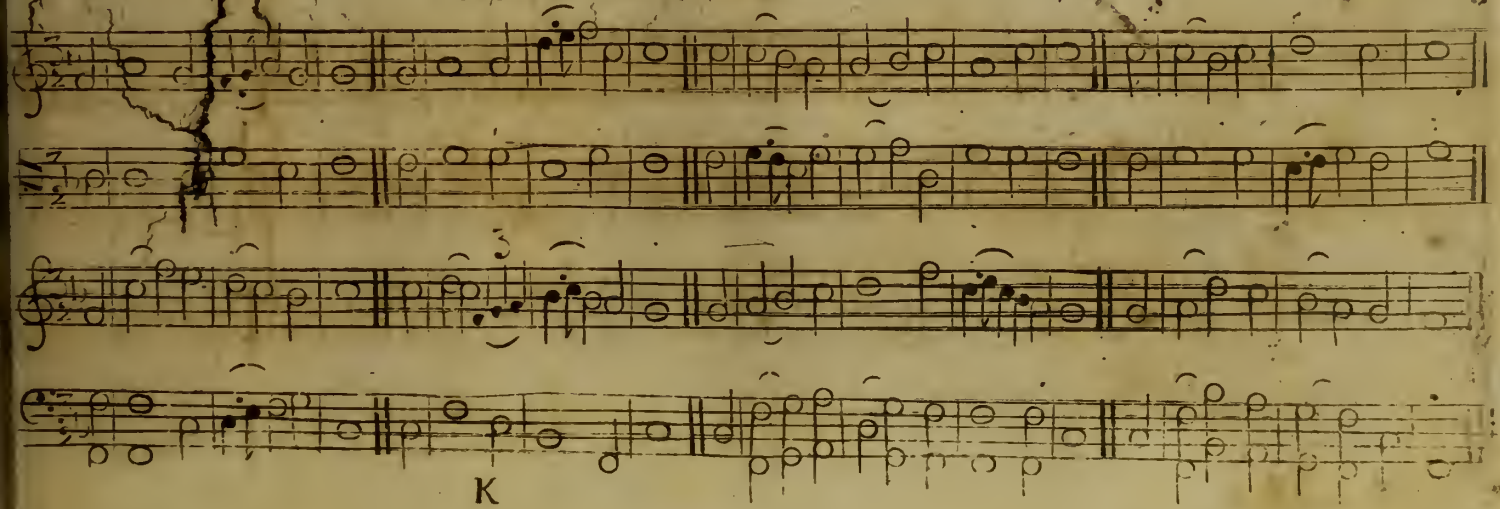
SWANZEY. CM.



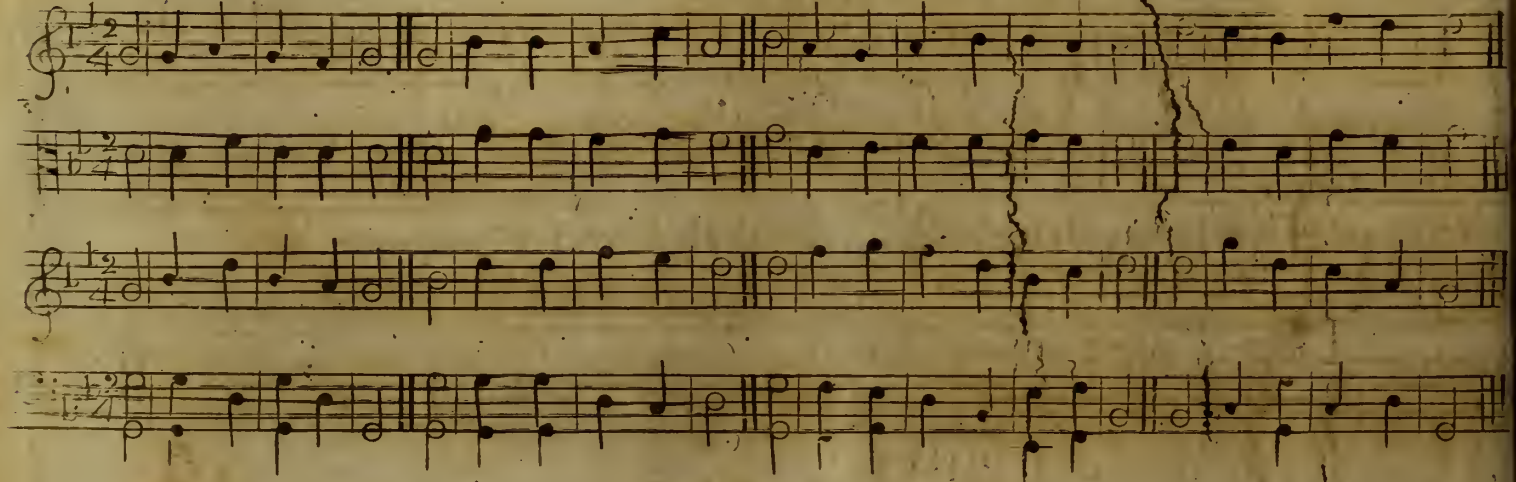
Dickinſon. SM.



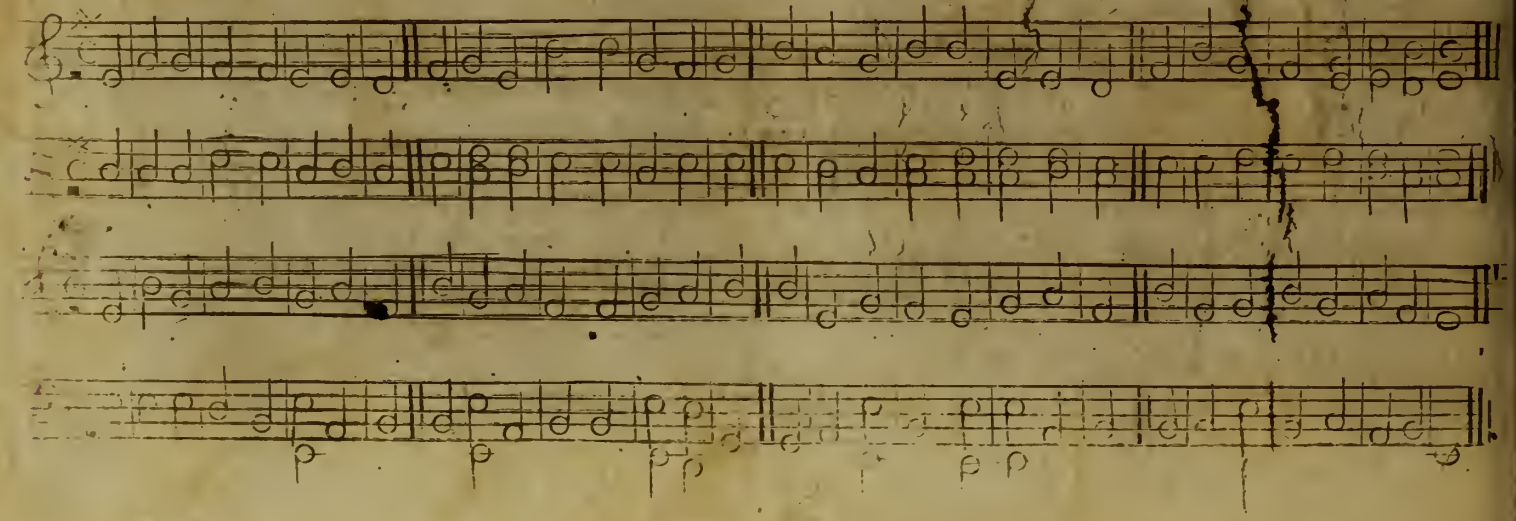
Purchaſe Street. SM.



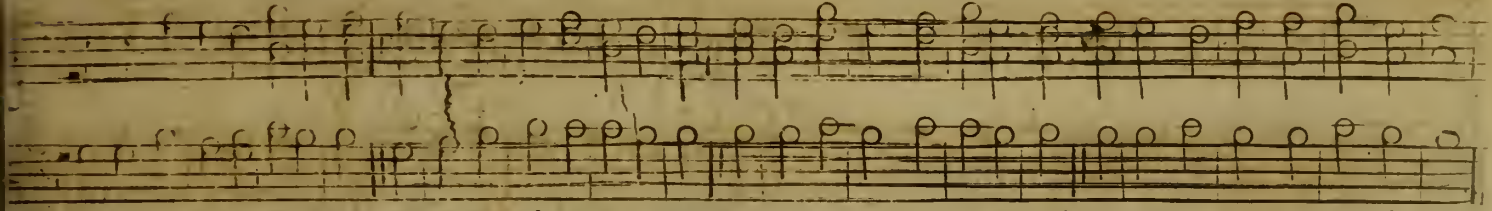
Middletown. S M.

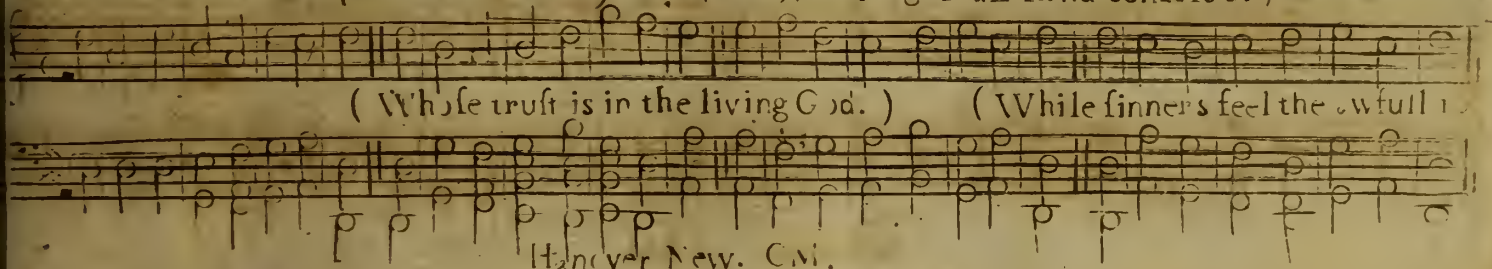


Shirley. L M.

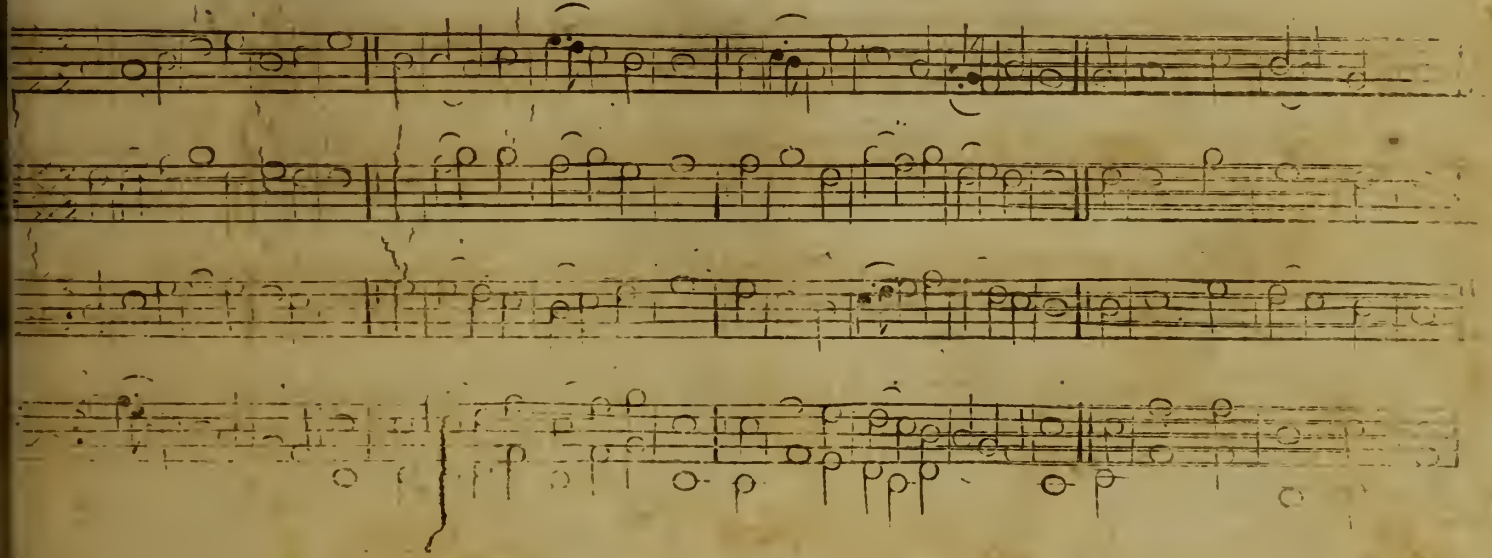


Hanover. LM.

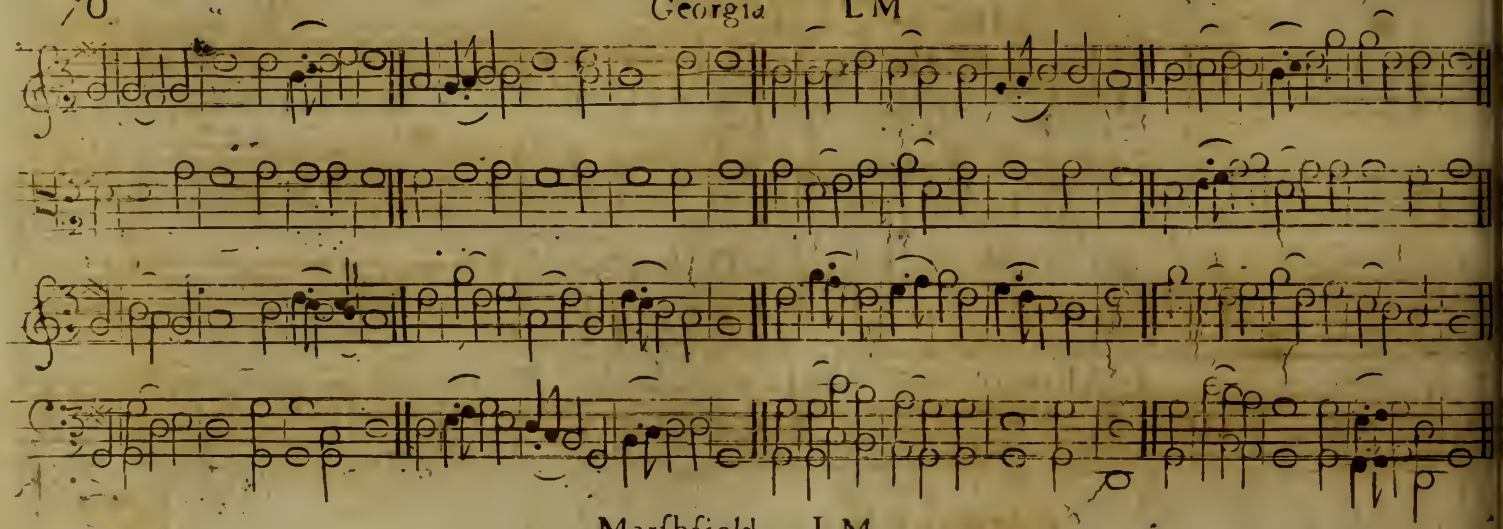




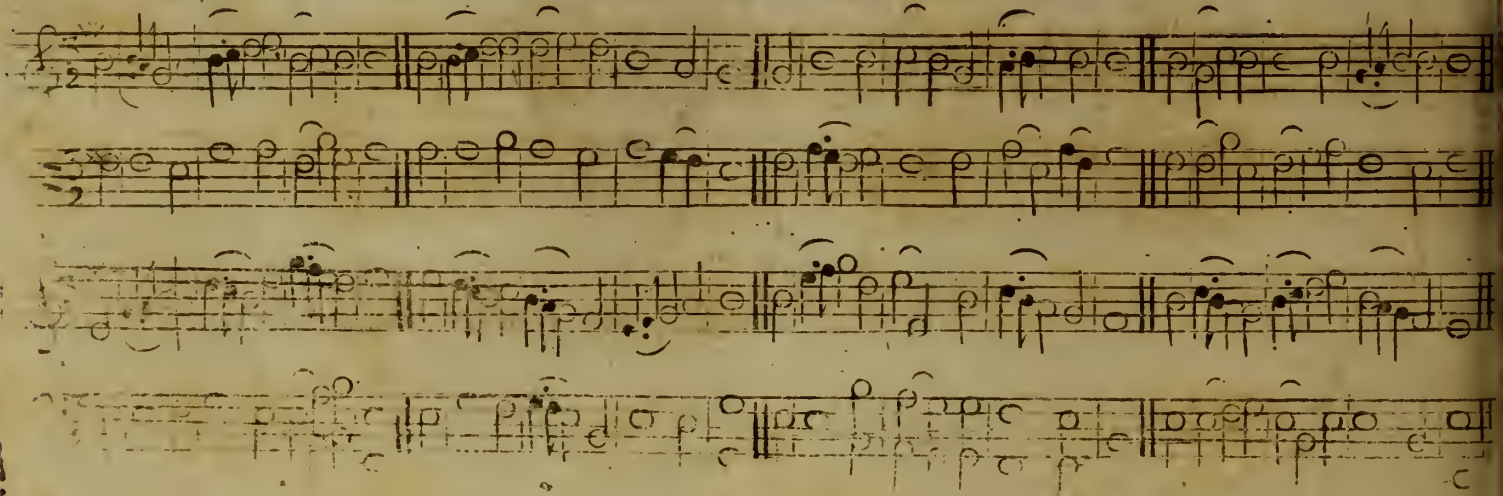
Hanover New. CM.



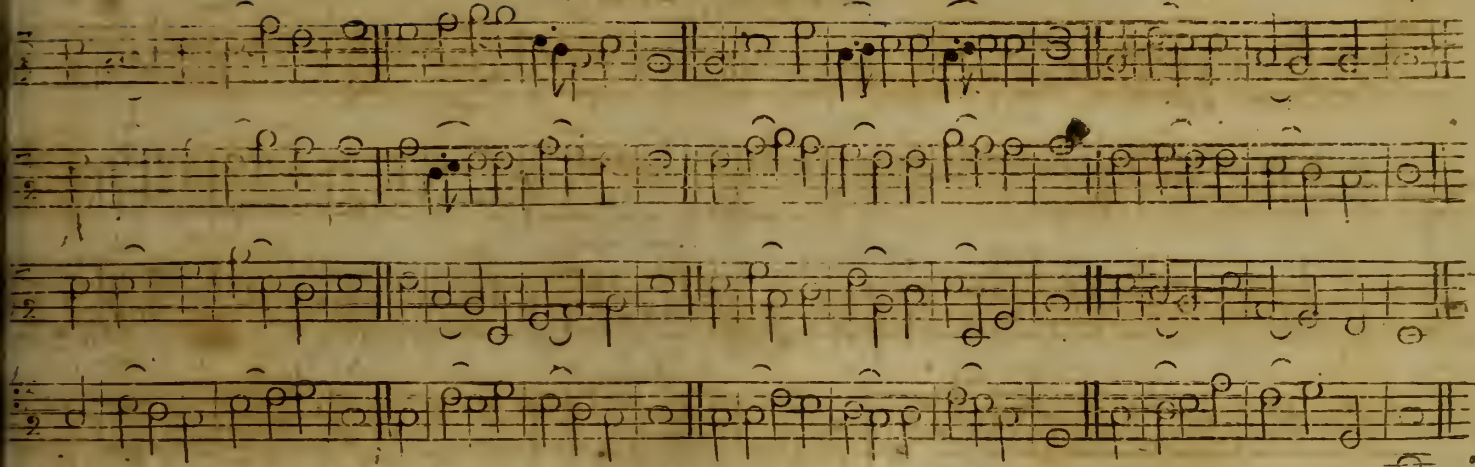
Georgia LM



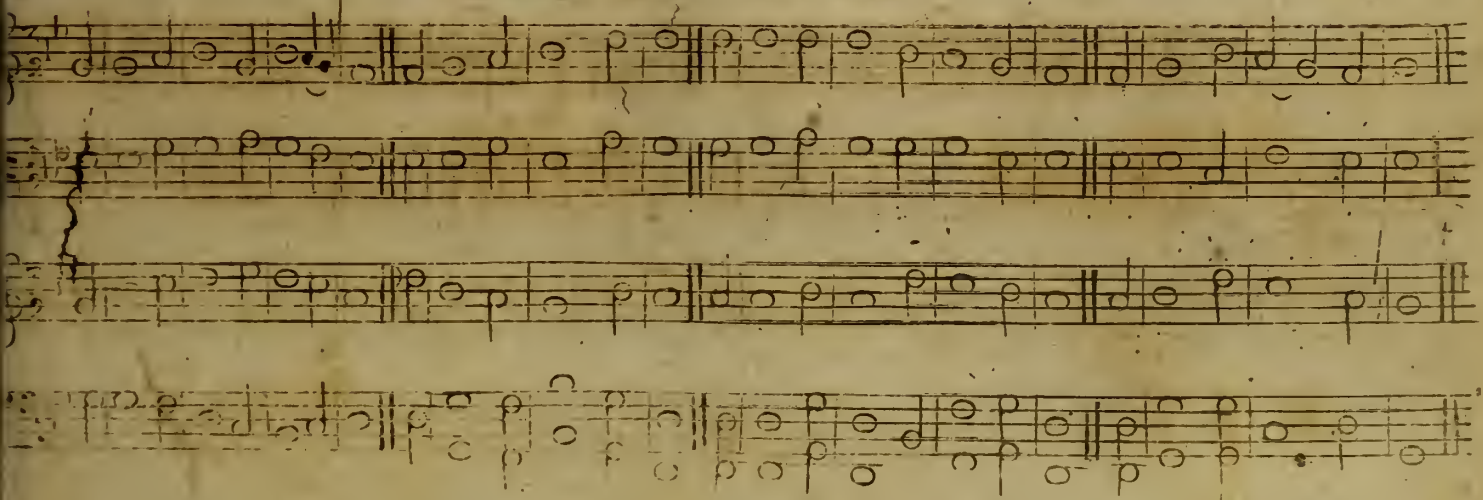
Marshfield LM



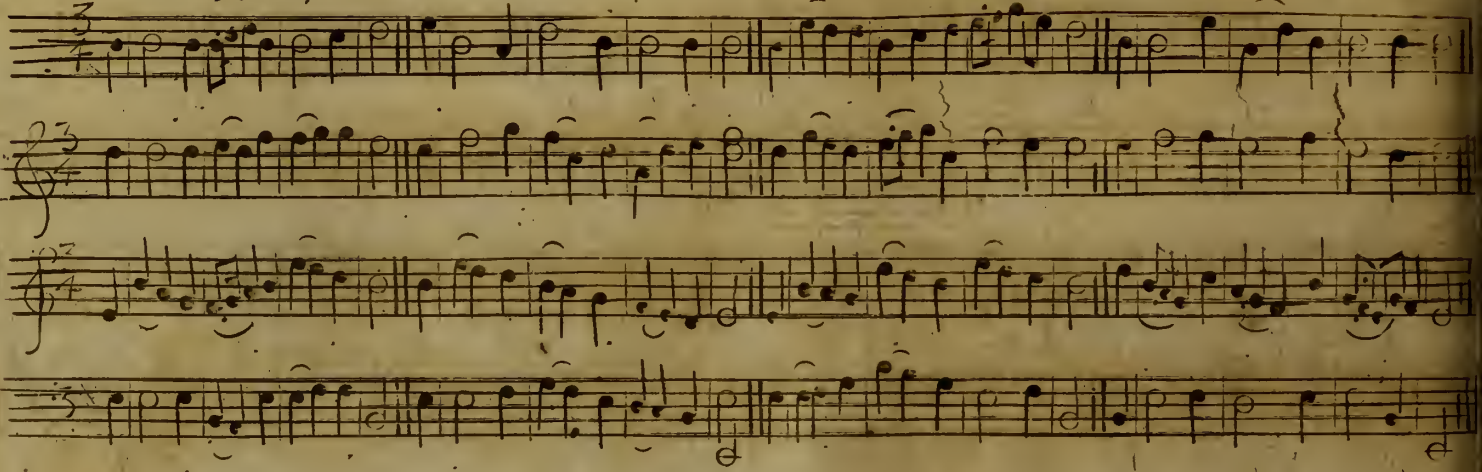
Lincoln. S M.



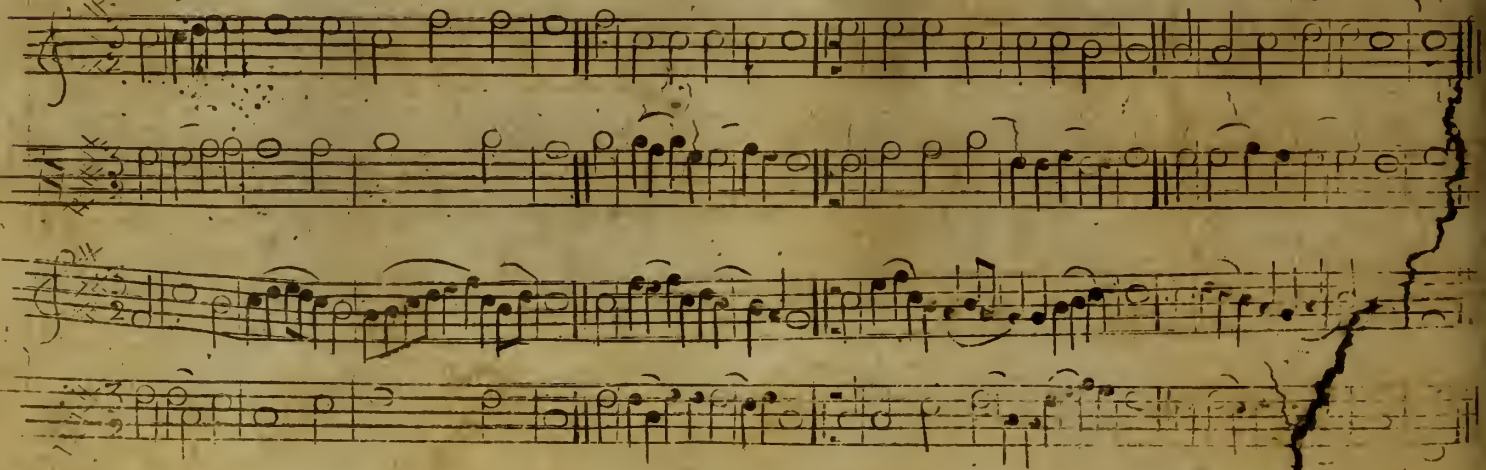
Orleans. C M.

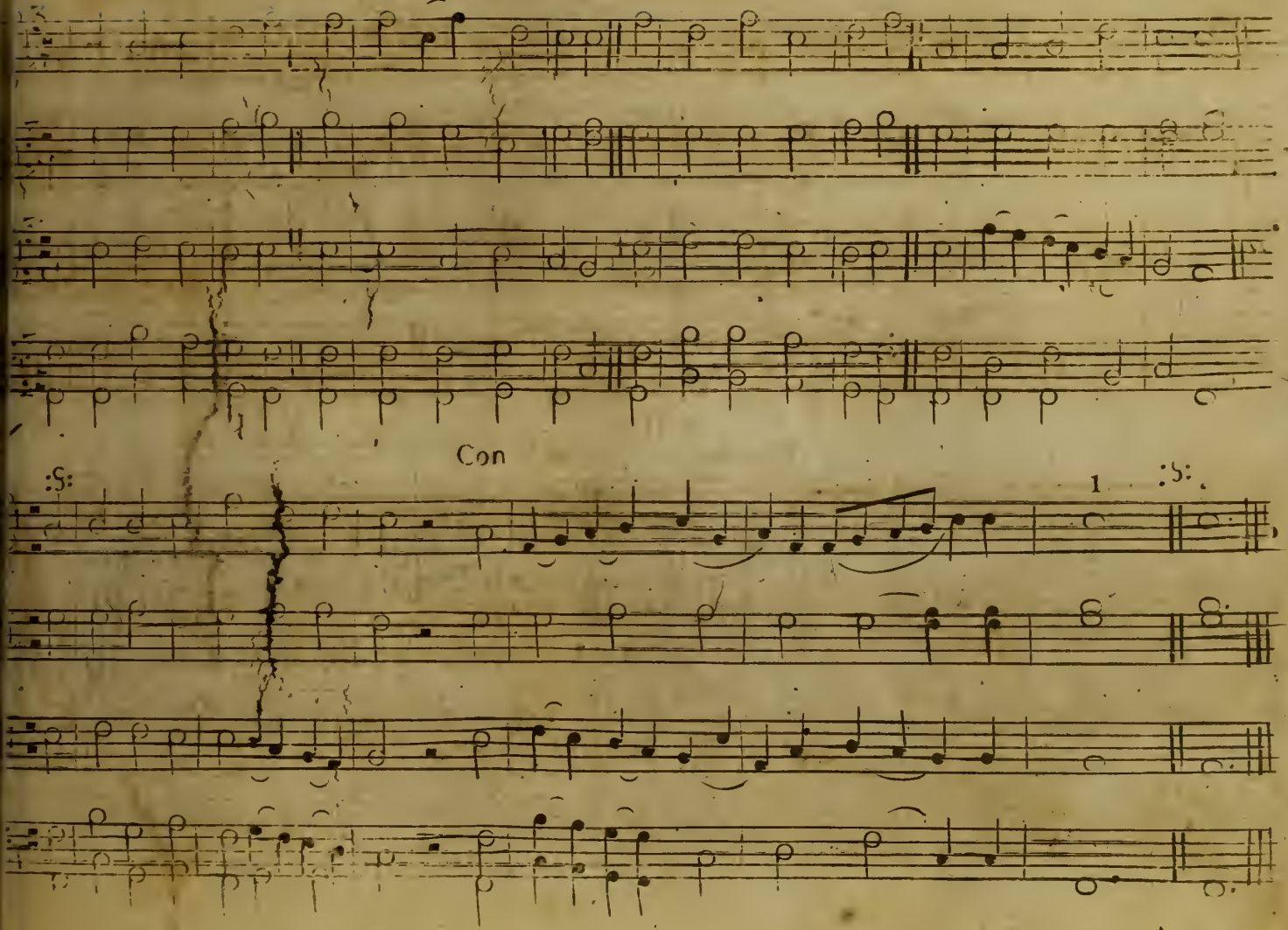


Providence. LM.

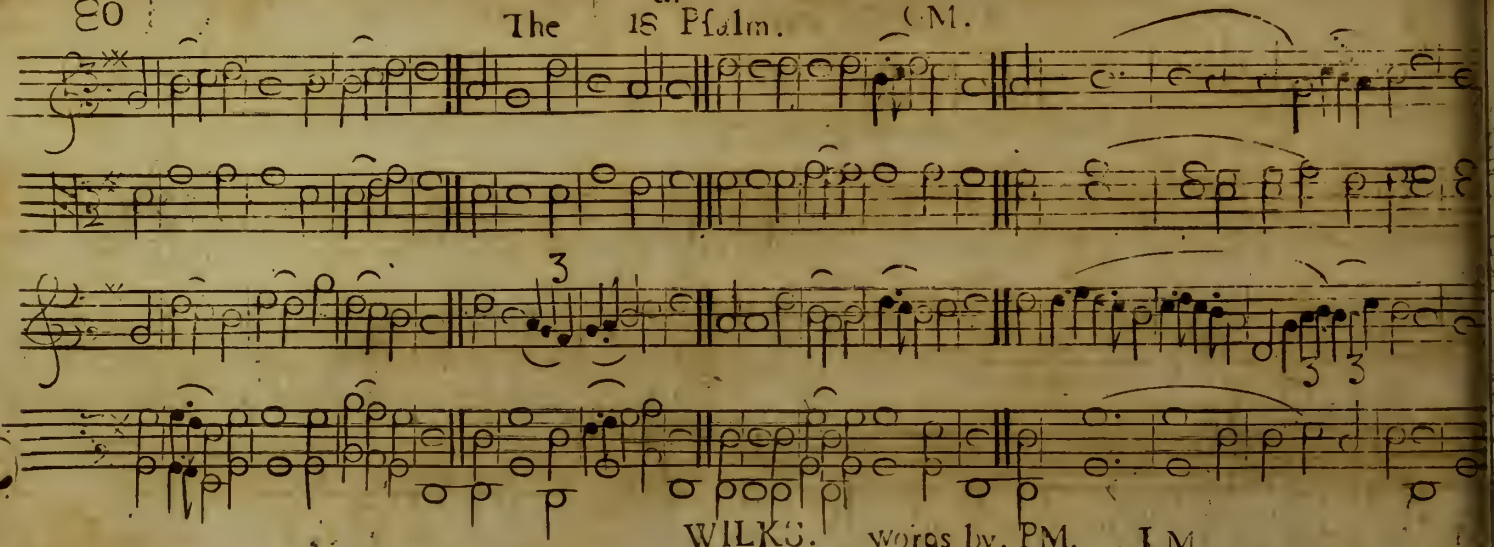


Dorchester. CM.

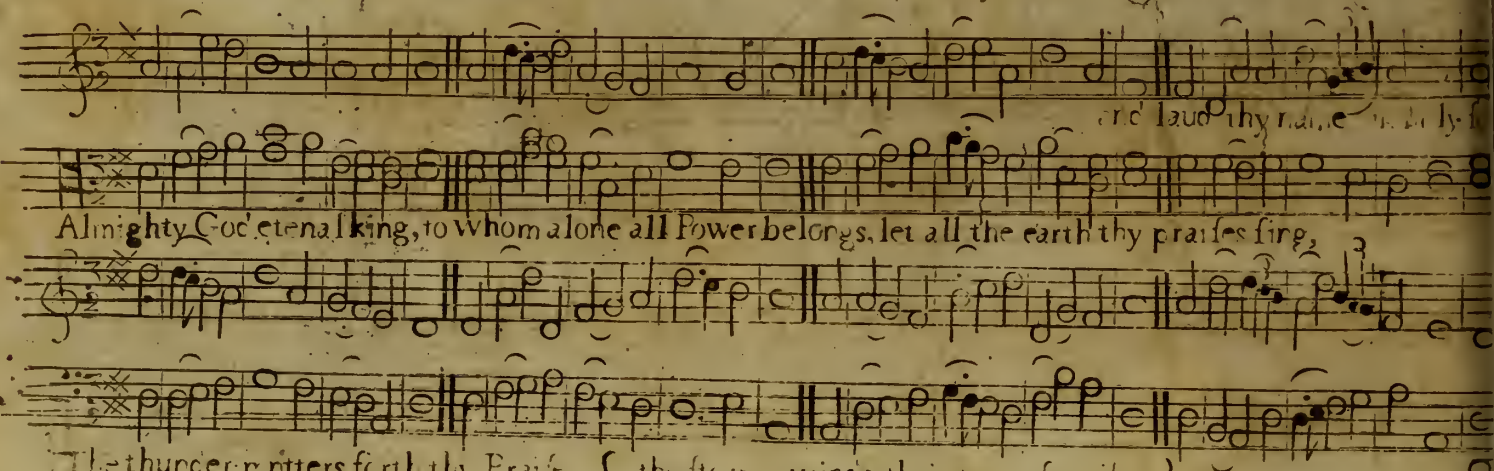


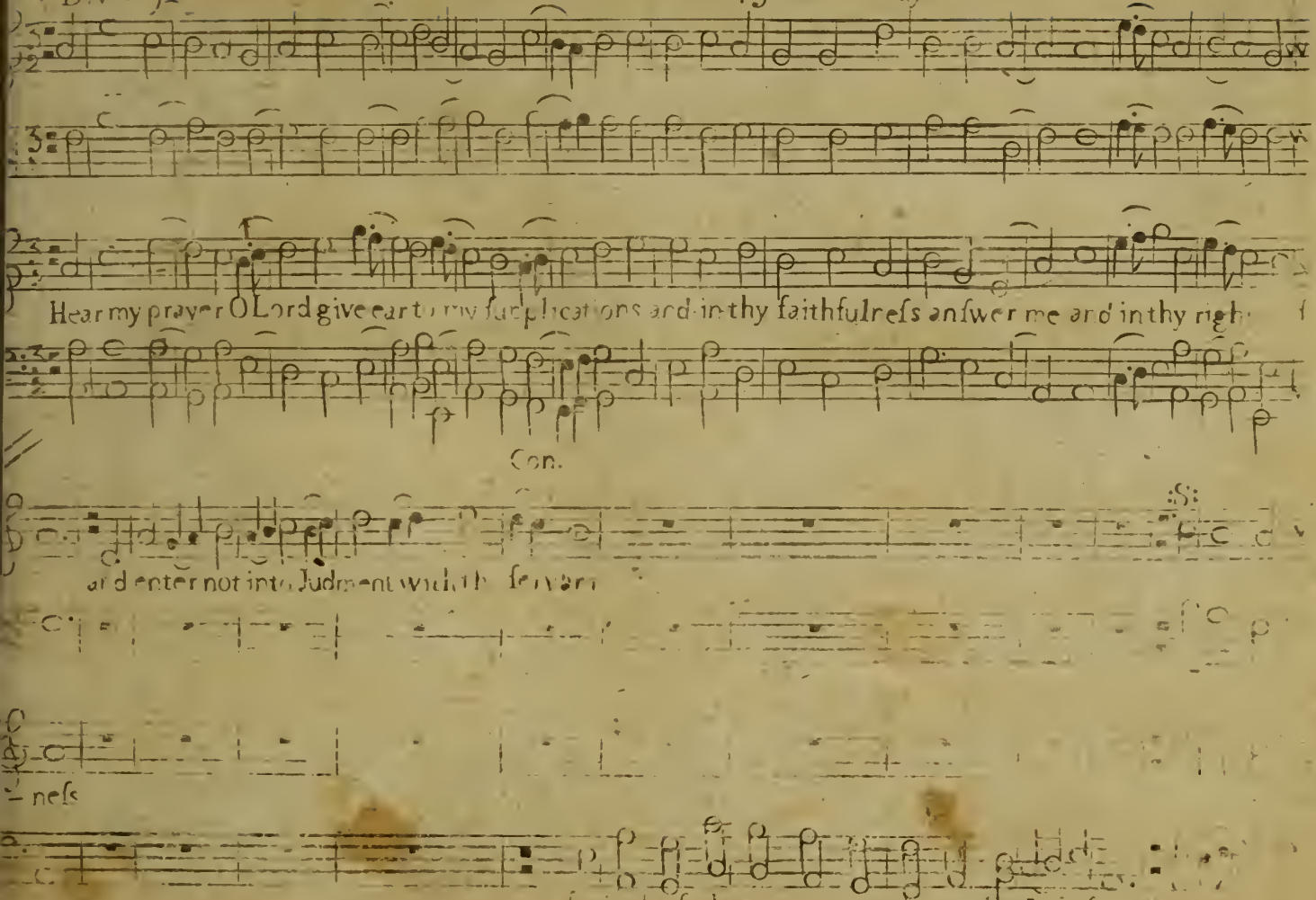

Con
:S:
1
:S:

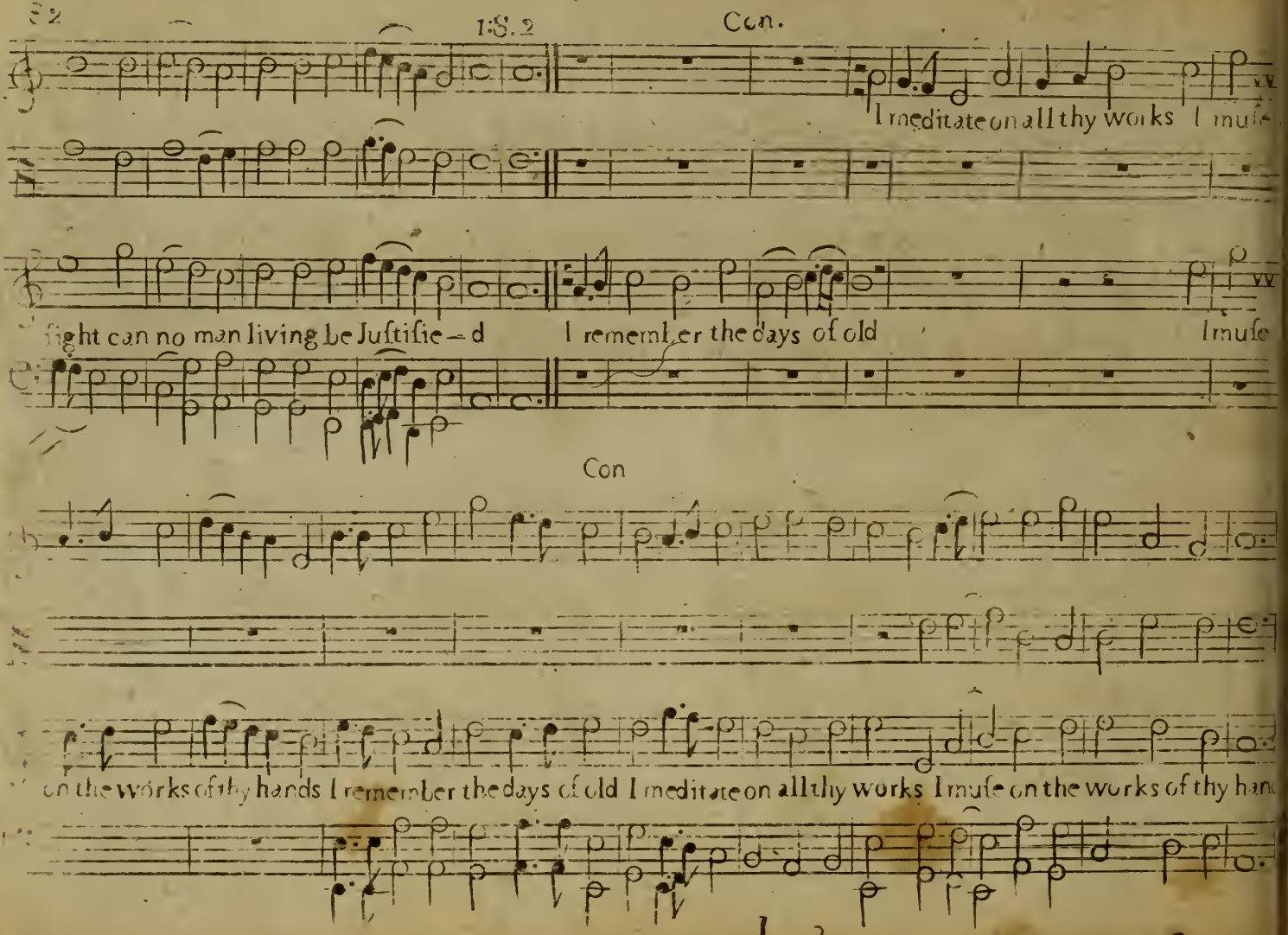
The 18th Psalm. CM.

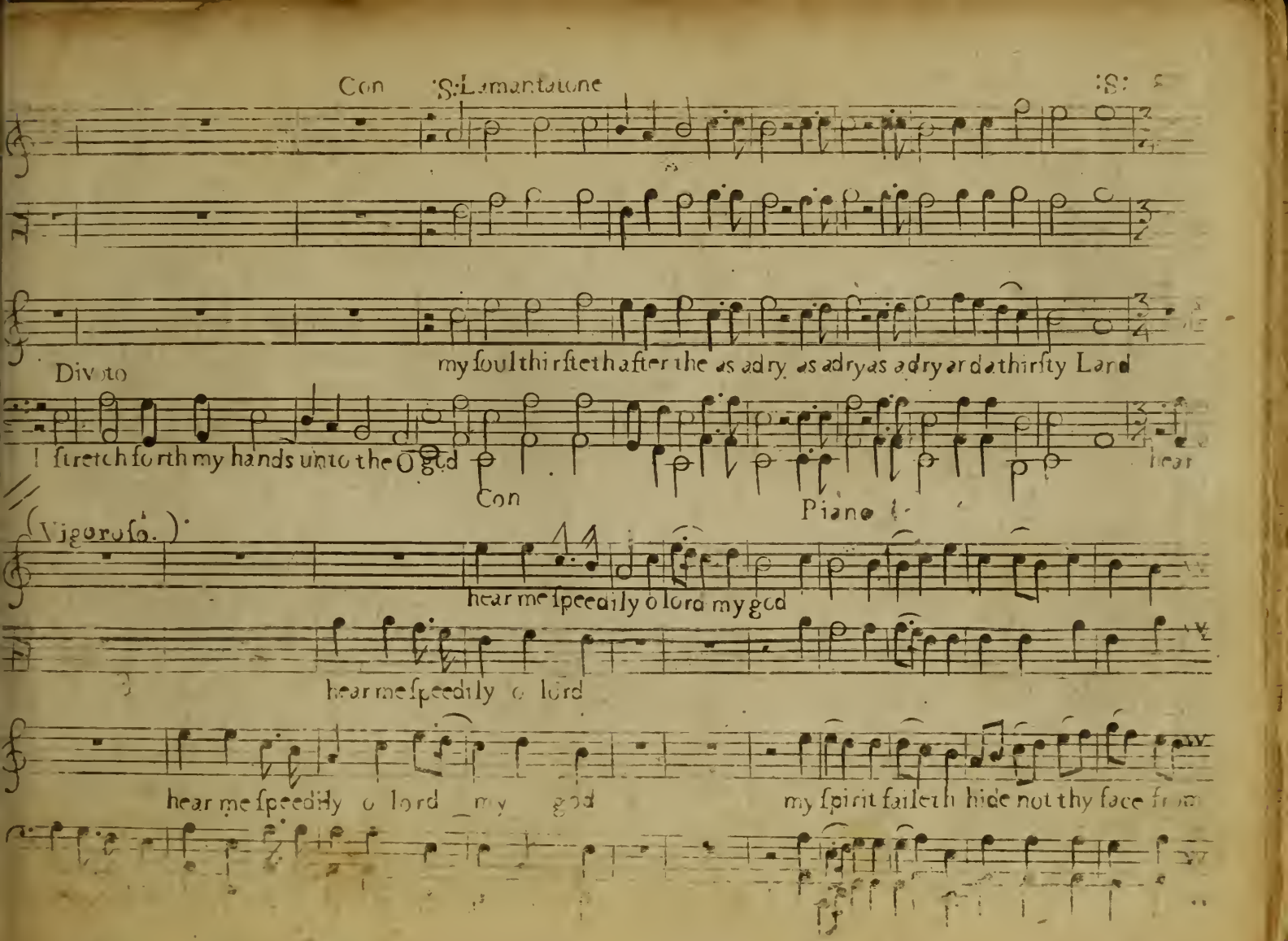


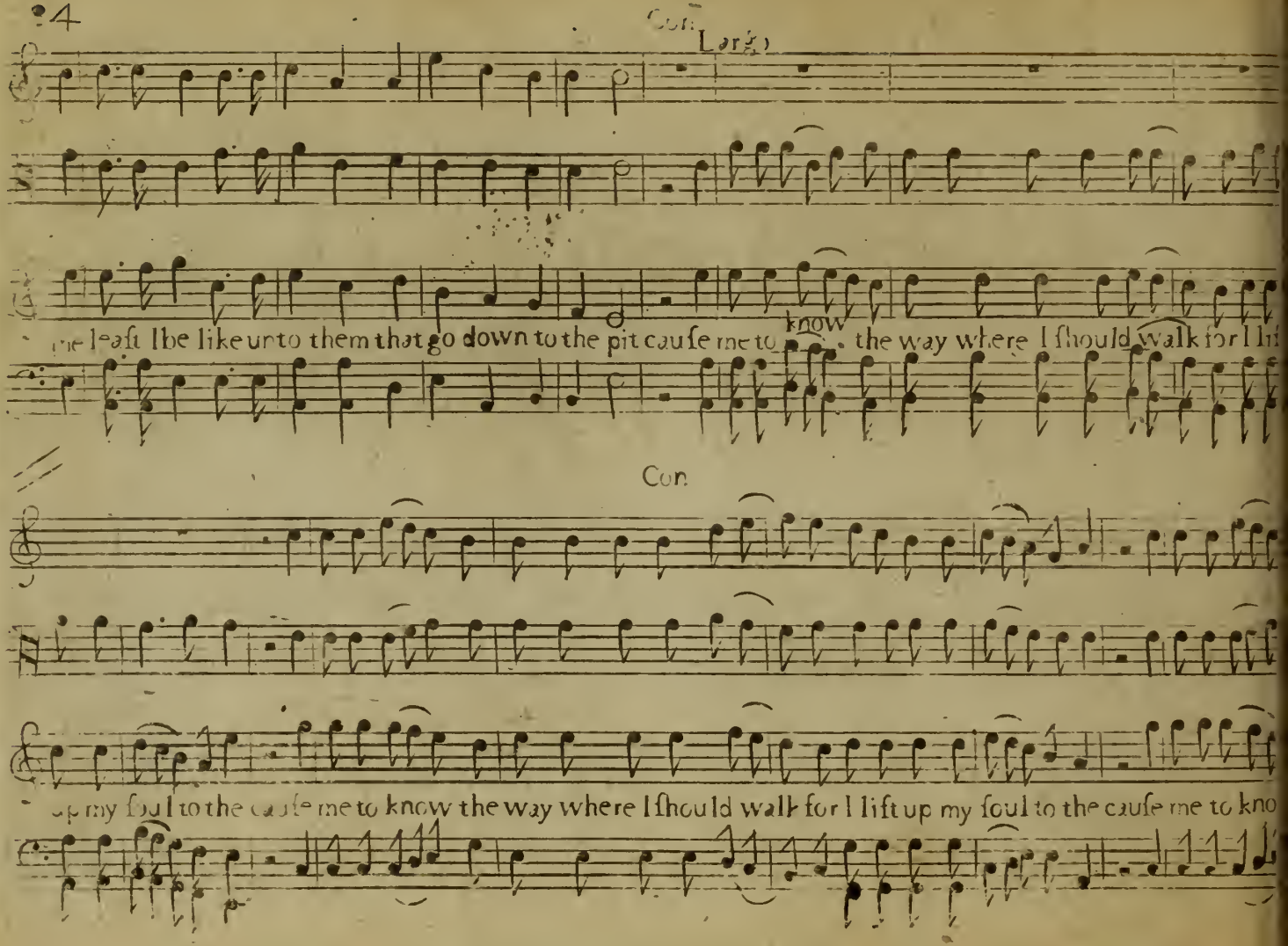
WILKS. words by. PM. LM.




Hear my prayer O Lord give eare to my supplications and in thy faithfulness answer me and in thy righ
Con.
and enter not into Judgment with thy servan
nes
for thy sight can no man living be Justified


1.S.2
Con.
I meditate on all thy works I muſe
ſight can no man living be Juſtifie – d
I remember the days of old
I muſe
Con
on the works of thy hands I remember the days of old I meditate on all thy works I muſe on the works of thy hand
2


Con S:Lamantatione
:S:
Divoto
my soul thirsteth after the as a dry as a dry as a dry ar da thirsty Land
I stretch forth my hands unto the O God
Con
Piano
(Vigorosa.)
hear me speedily o lord my god
hear me speedily o lord
hear me speedily o lord my god
my spirit faileth hide not thy face from


Con
Larg
me leaſt I be like unto them that go down to the pit cauſe me to know the way where I ſhould walk for I lif
Con
up my ſoul to the cauſe me to know the way where I ſhould walk for I lift up my ſoul to the cauſe me to kno

Cor

the way . where I should walk for I lift . o my soul to the Halle lu-jah Halle-lu-jah Halle-lu-jah.

Cor

(:S: Forte) 1:S:2 :S: A Canon of 4 in 1 :S:

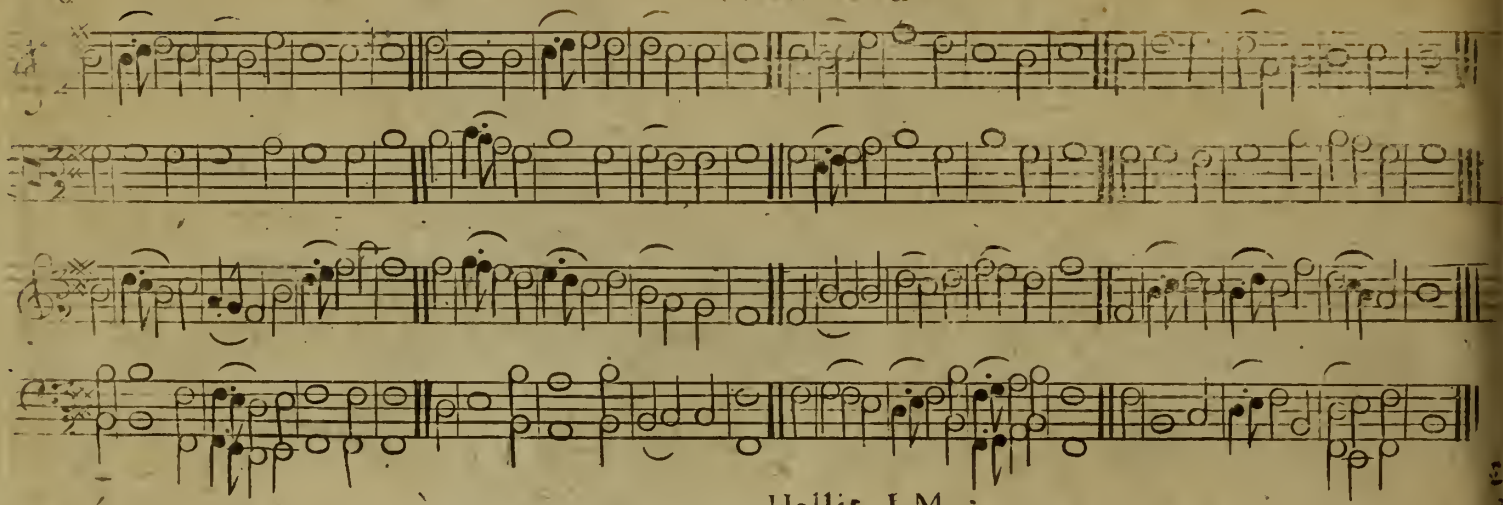
(Thus saith the high the lofty one.)

(I set upon mine hol--y throne.)

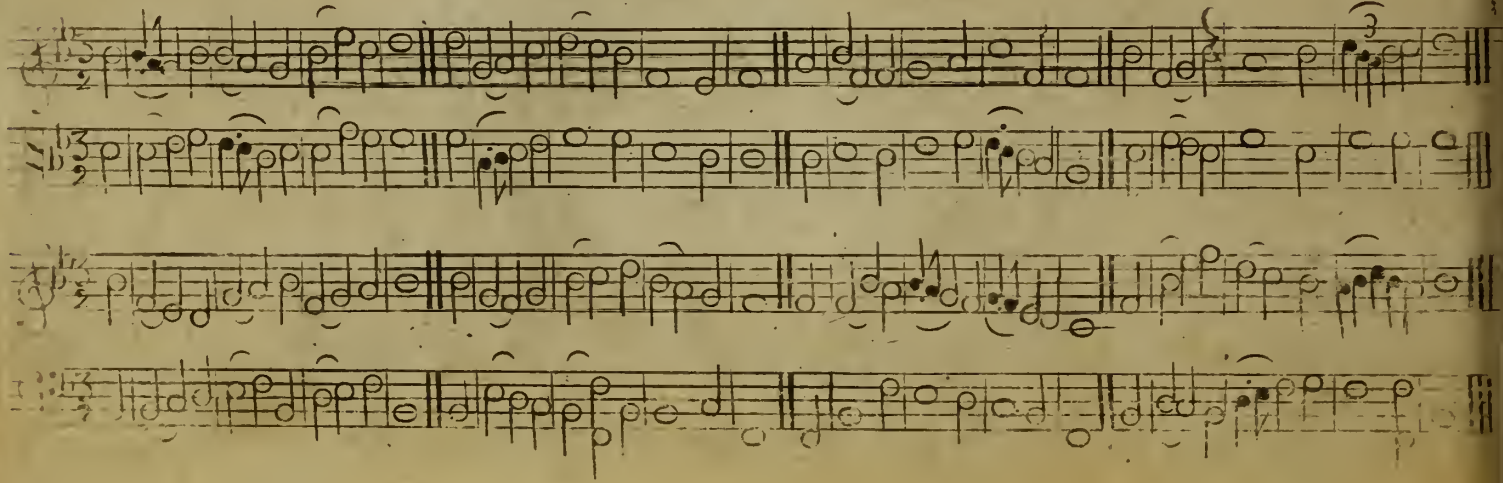
Halle-lujah Hallelujah Hallelujah Hallelujah Hallelujah :) (my name is God I dwell on high.)

(dwell in the ever-last-ing)

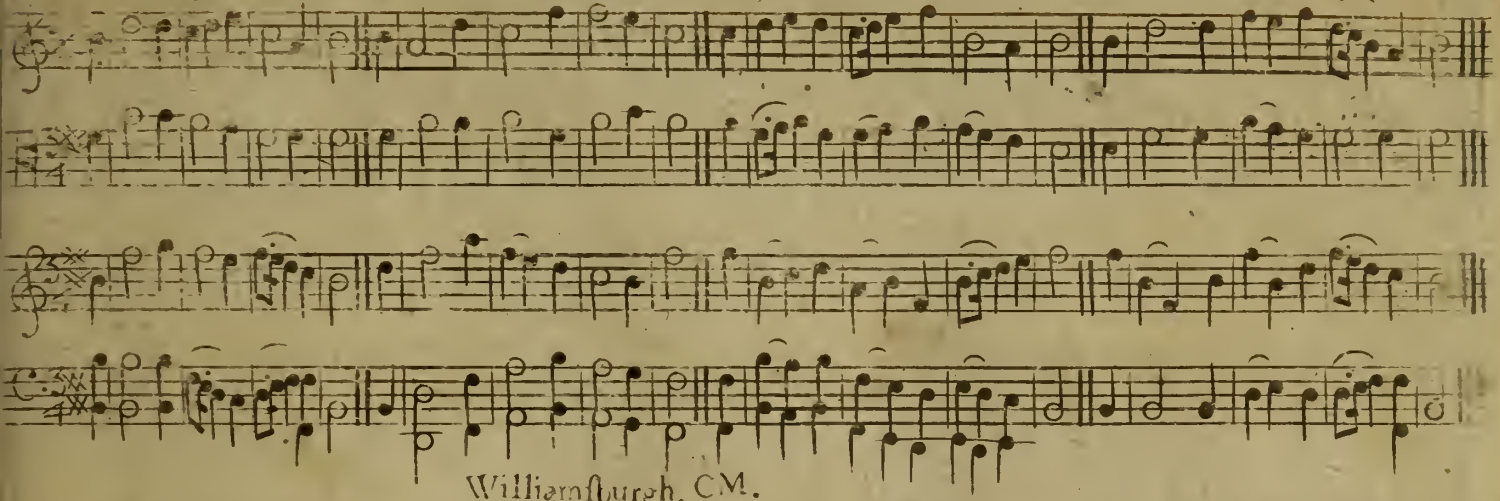
Medford. L.M.



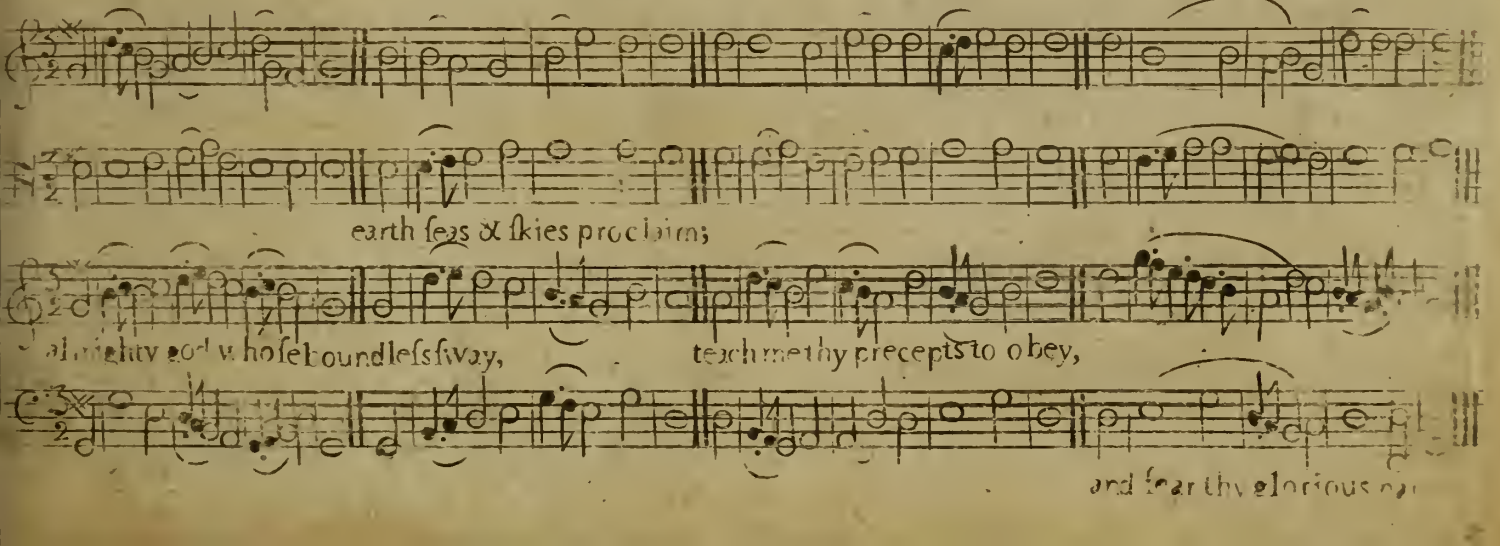
Hollis. L.M.

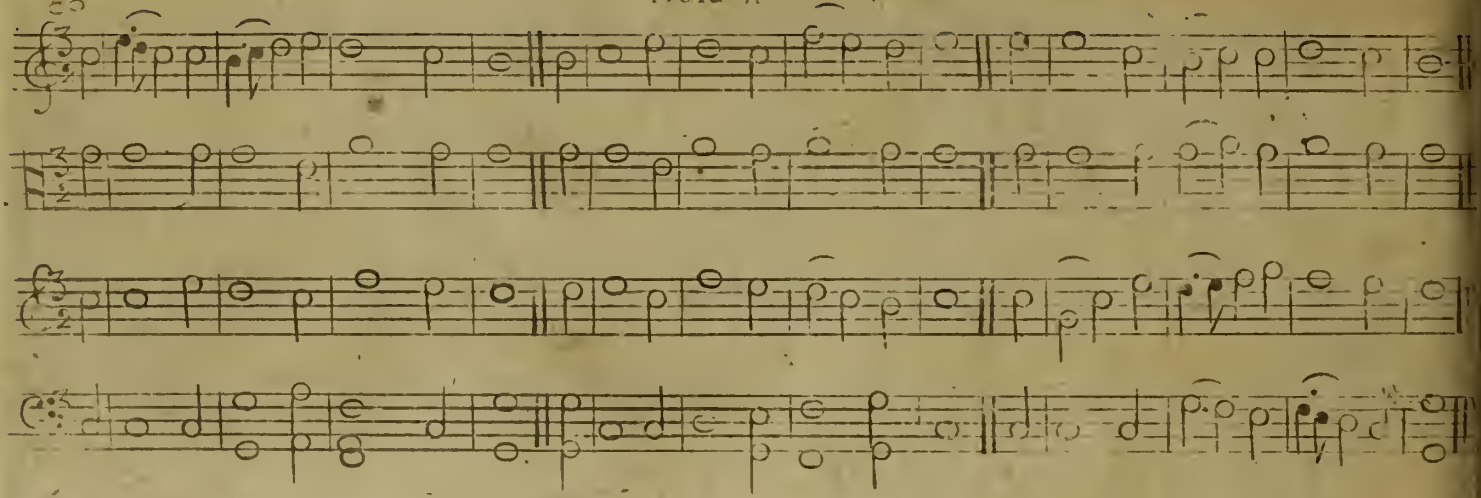


Newport. LM.

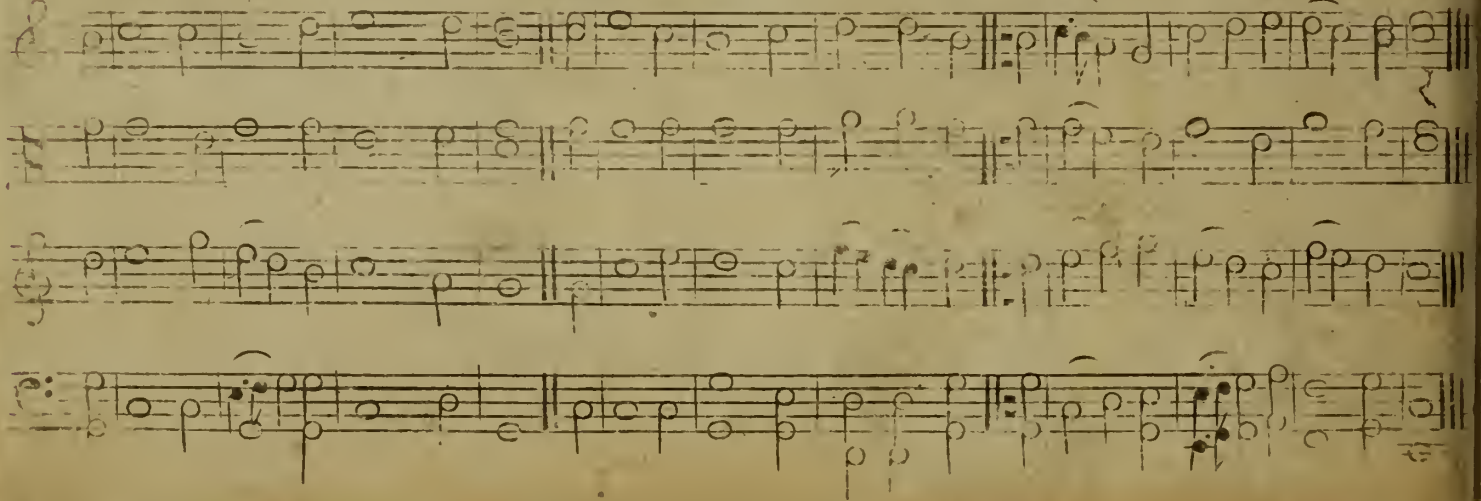


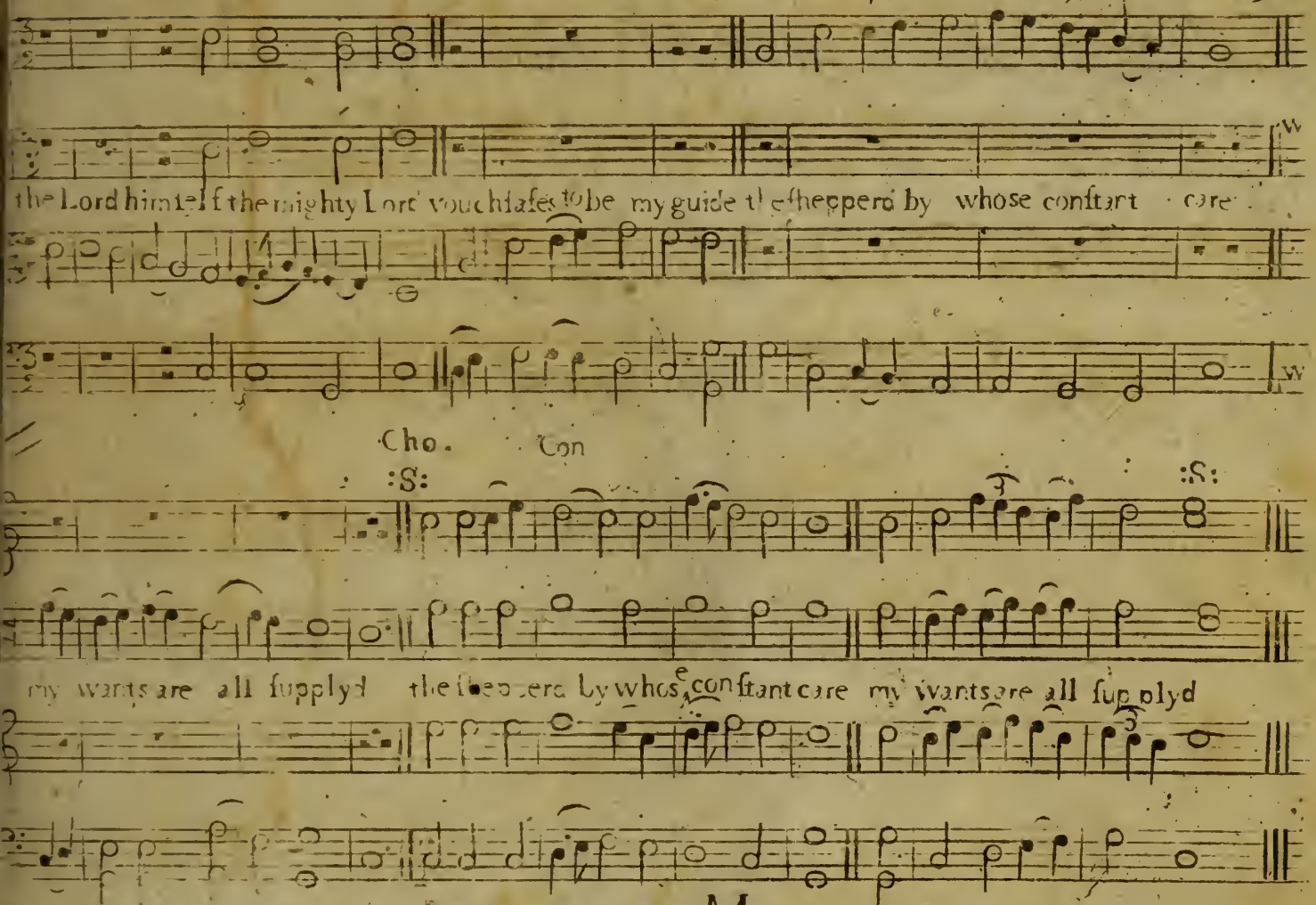
Williamsburgh. CM.

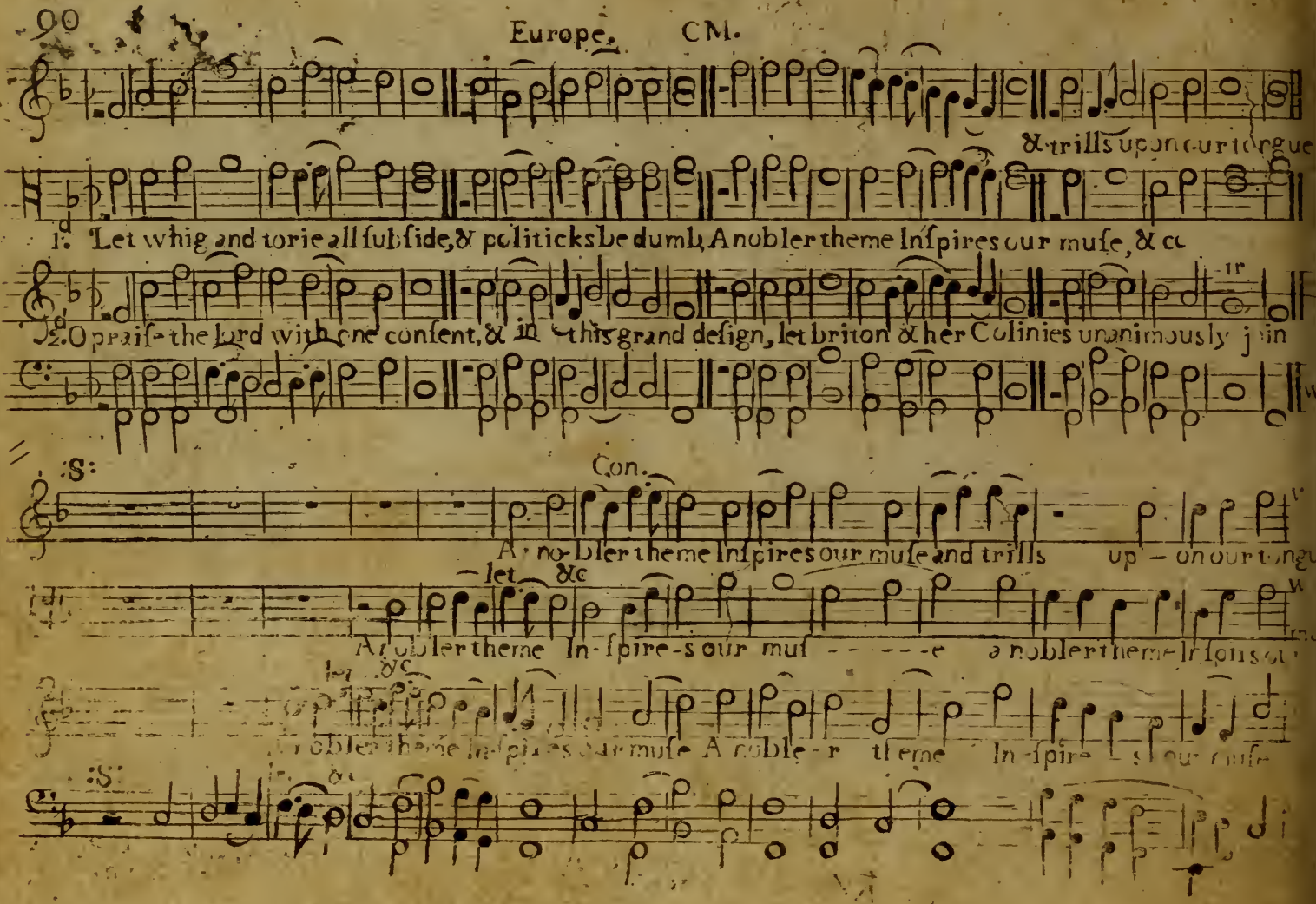


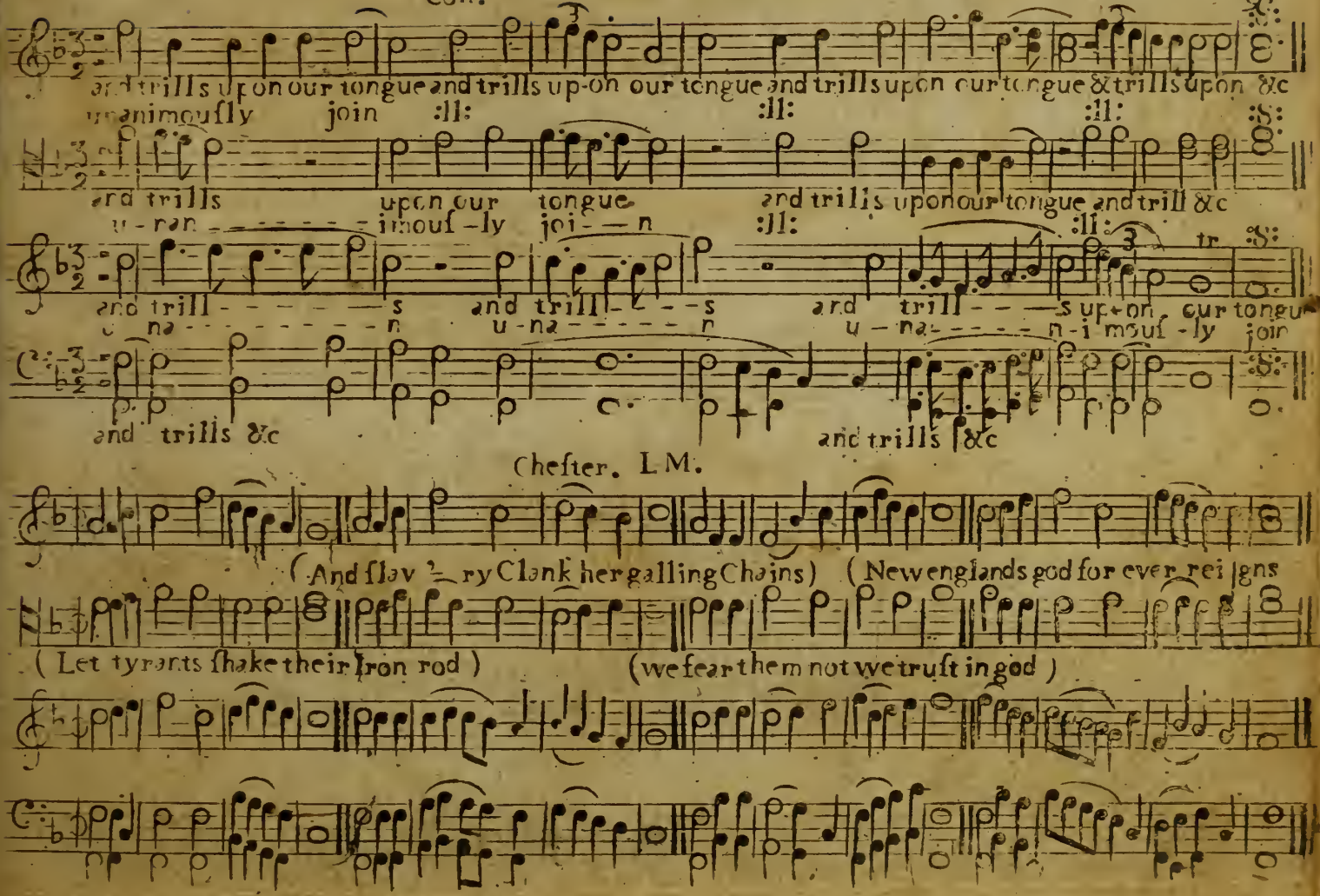


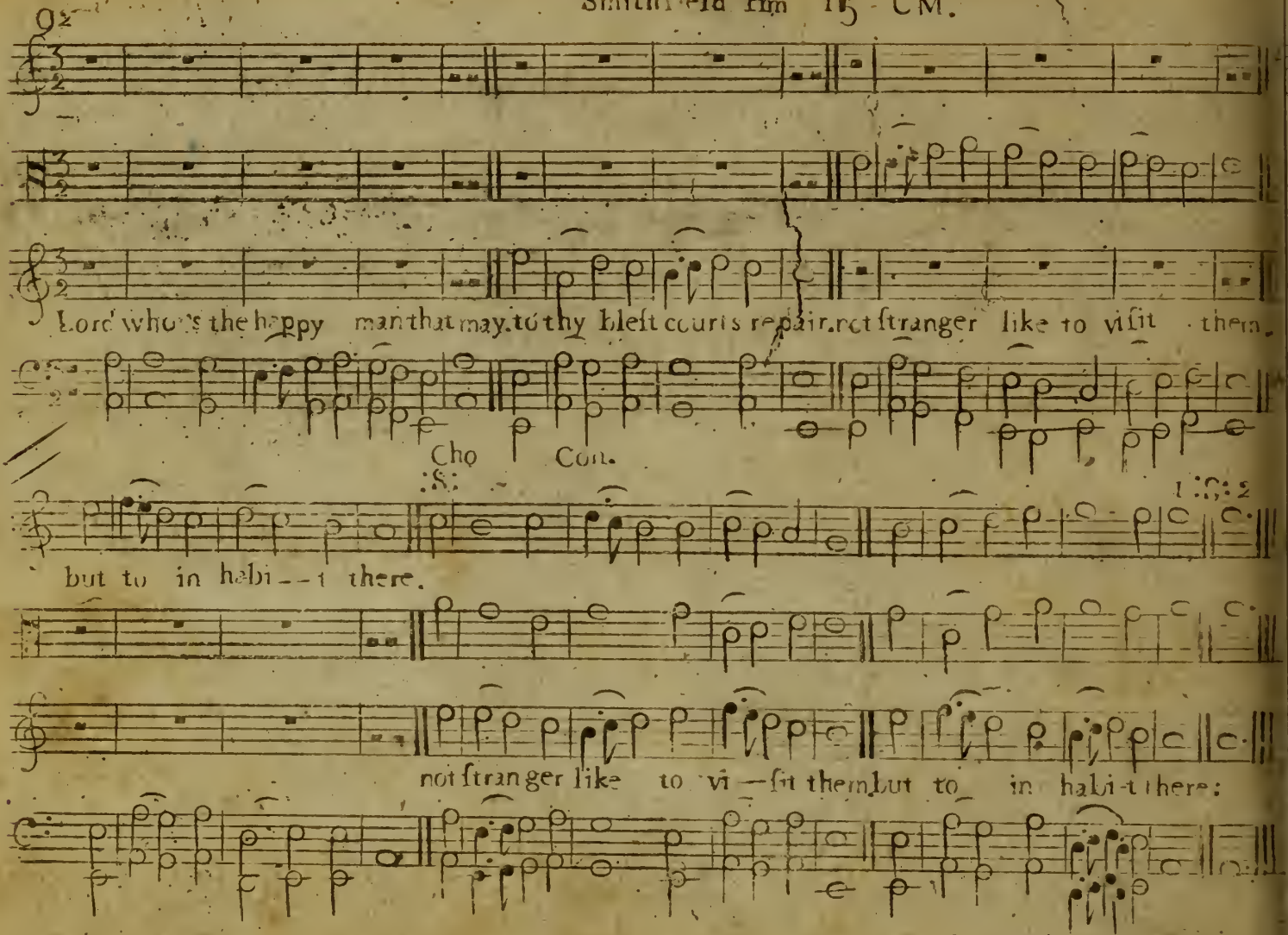
Con.



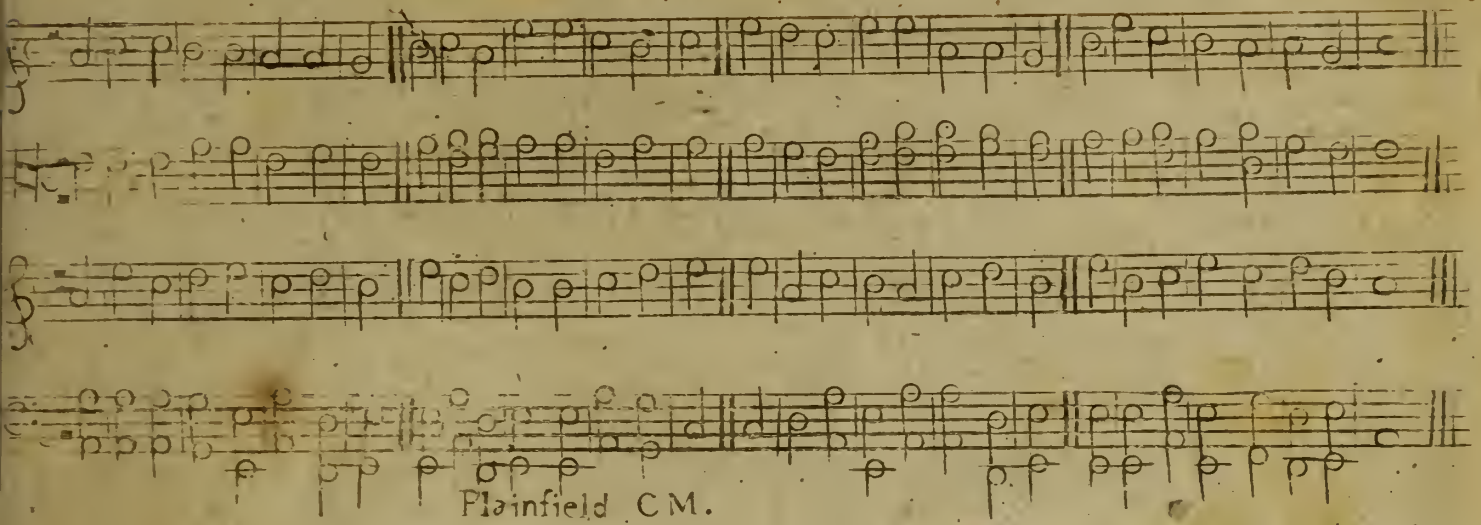

the Lord himſelf the mighty Lord vouchſafes to be my guide the ſheppera by whose conſtant care
Cho. Con
:S: :S:
my wants are all ſupplyd the ſheppera by whos conſtant care my wants are all ſupplyd


Europe. CM.
& trills upon our tongue
1. Let whig and torie all subside, & politicks be dumb, A nobler theme Inspires our muse, & &c
2. O praise the Lord with one consent, & in this grand design, let briton & her Colinies unanimously join
Con.
A nobler theme Inspires our muse and trills up-on our tongu
let &c
A nobler theme In-spire-s our mus - - - - - e a nobler theme Inspires our
A nobler theme In-spires our muse A noble-r theme In-spire-s our muse

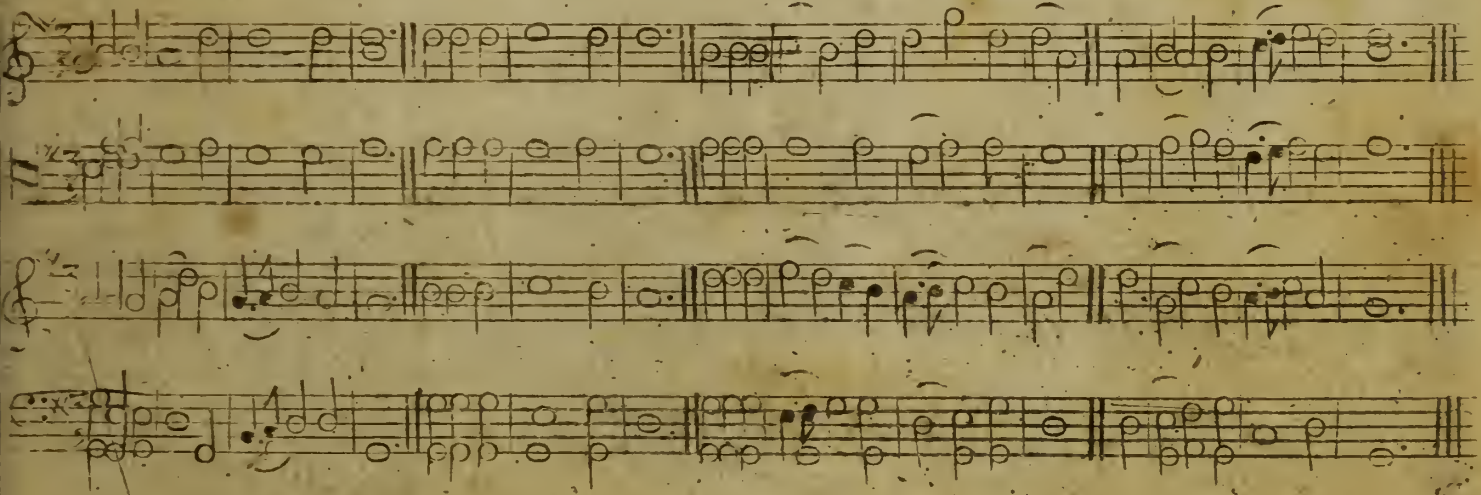

Con.
and trills upon our tongue and trills up-on our tongue and trills upon our tongue & trills upon &c
unanimously join
and trills upon our tongue
u - nan - imouf - ly joi - n
and trill - - - - s and trill - - - s
u - na - - - - n u - na - - - - n
and trills upon our tongue and trill &c
and trill - - - - s up-on our tongu
u - na - - - - n - i mouf - ly join
and trills &c
and trills &c
Chester. L.M.
(And flav - ry Clank her galling Chains) (New englands god for ever reigns
(Let tyrants shake their Iron rod) (we fear them not we truft in god)


Lord who's the happy man that may to thy bleſt courts repair not ſtranger like to viſit them.
Cho Con.
but to in habi--t there.
not ſtranger like to vi--ſit them but to in habi-t there:

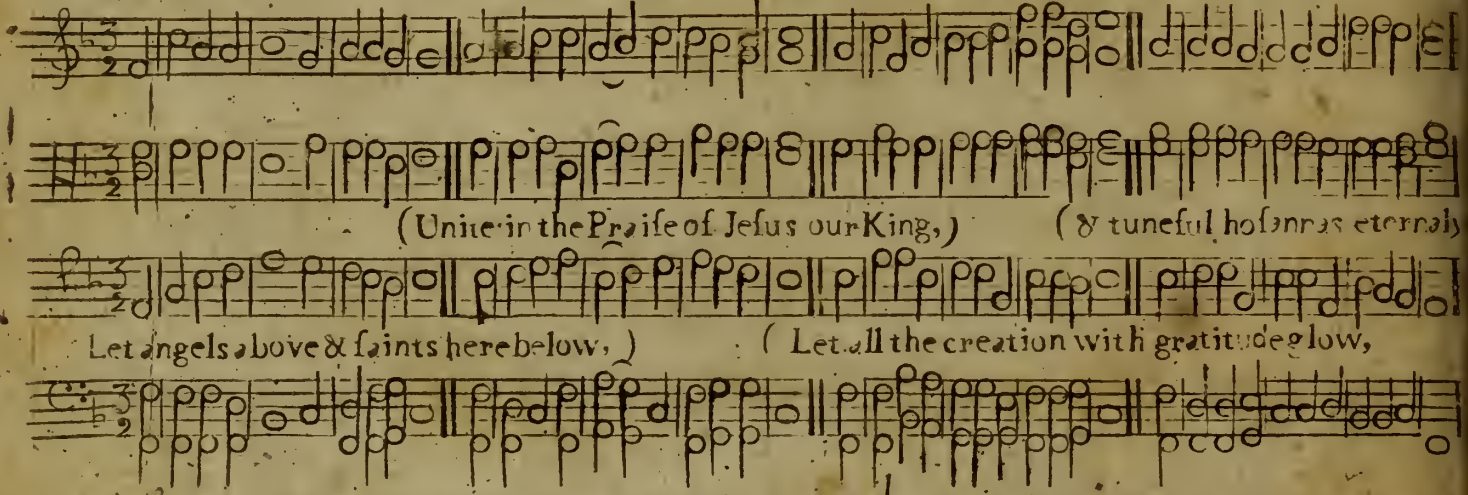
Lancaster L M.



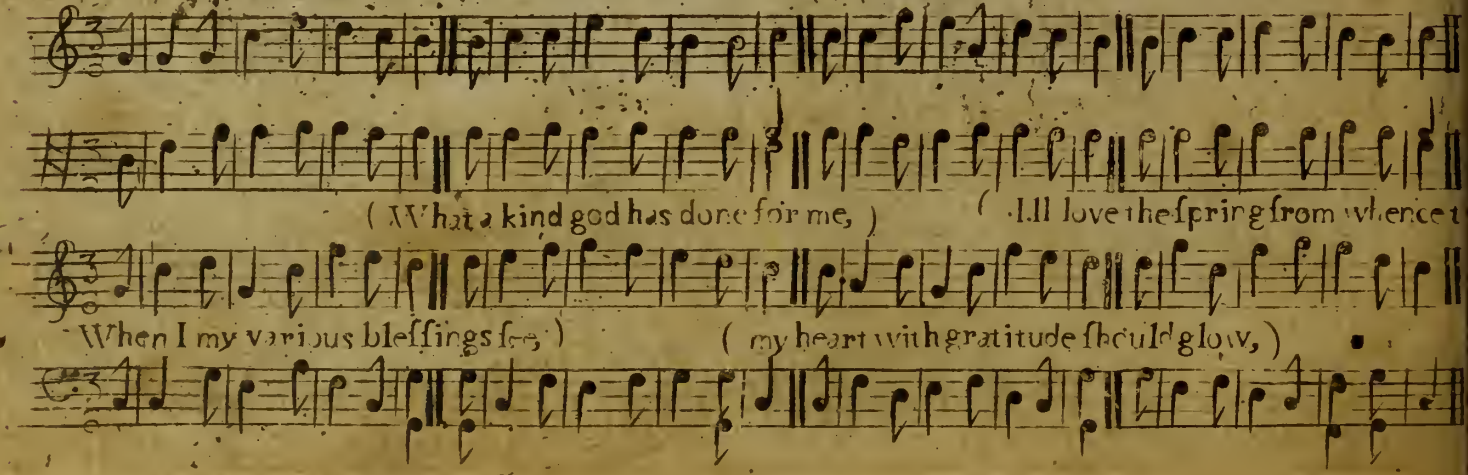
Plainfield C M.



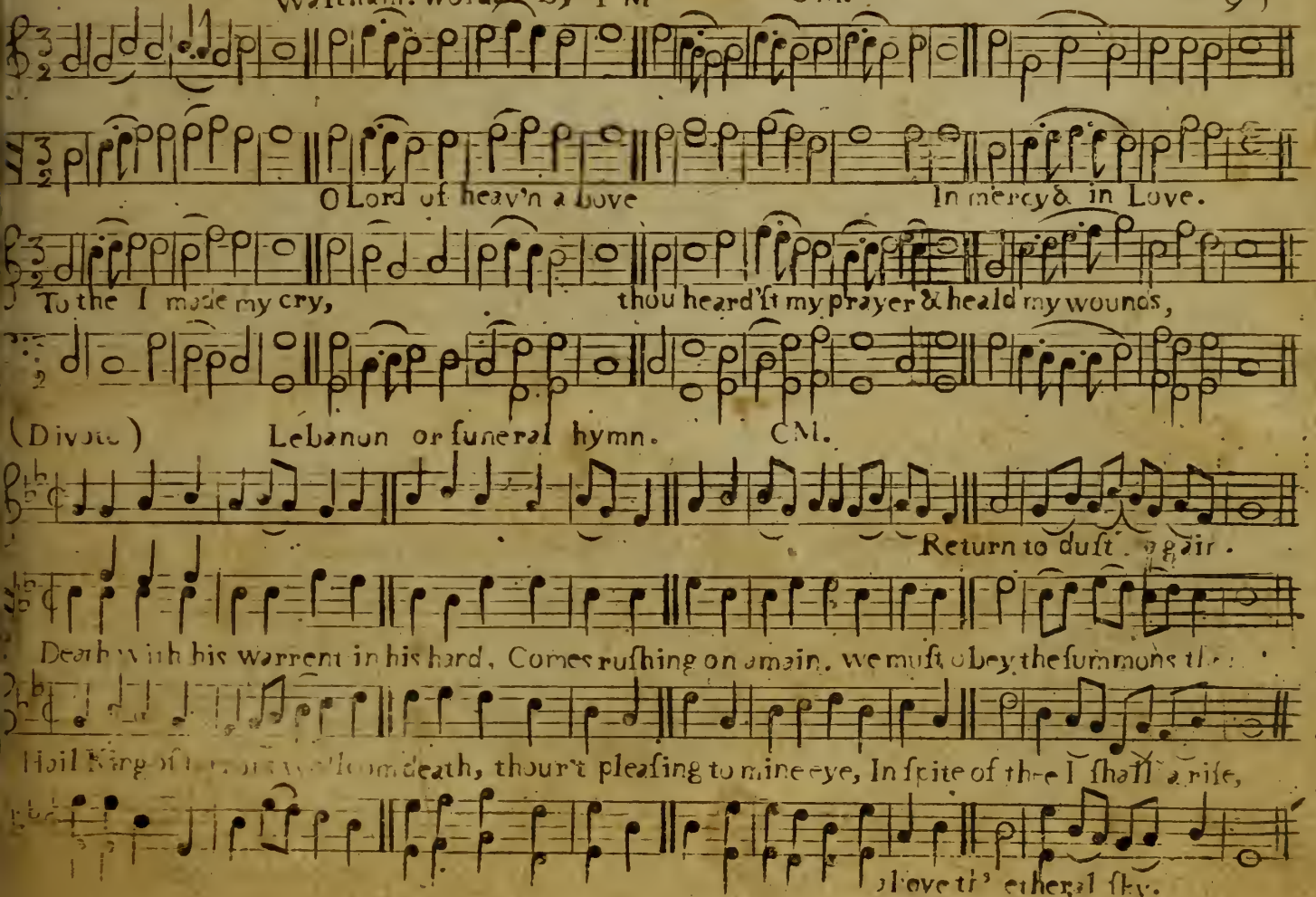
HOLLIS Street. Words by the Rev'd D^r Byles: PM.



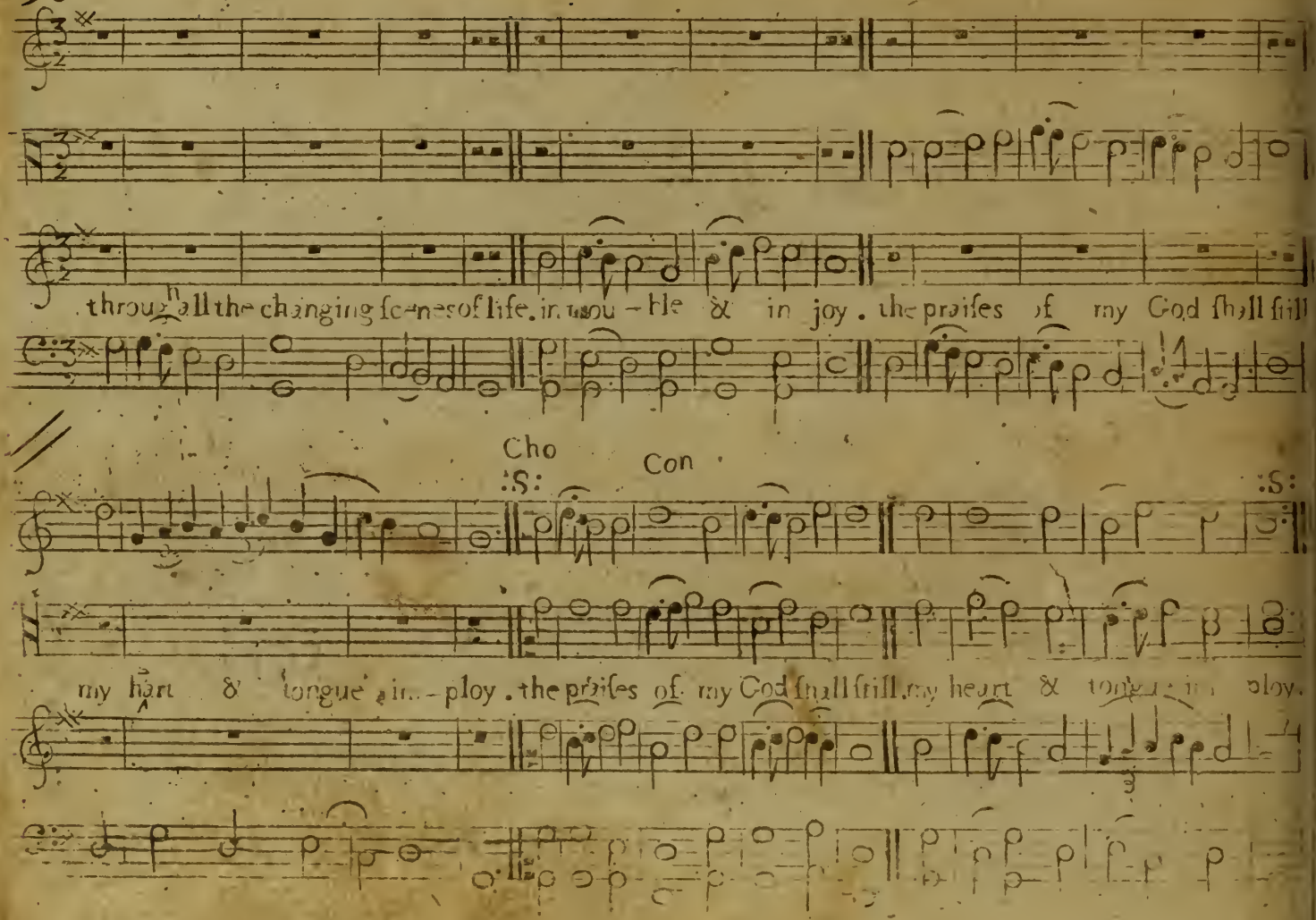
MEDFIELD. Words by the late Sam. Byles. M D. LM.



Waltham. words by P M SM.



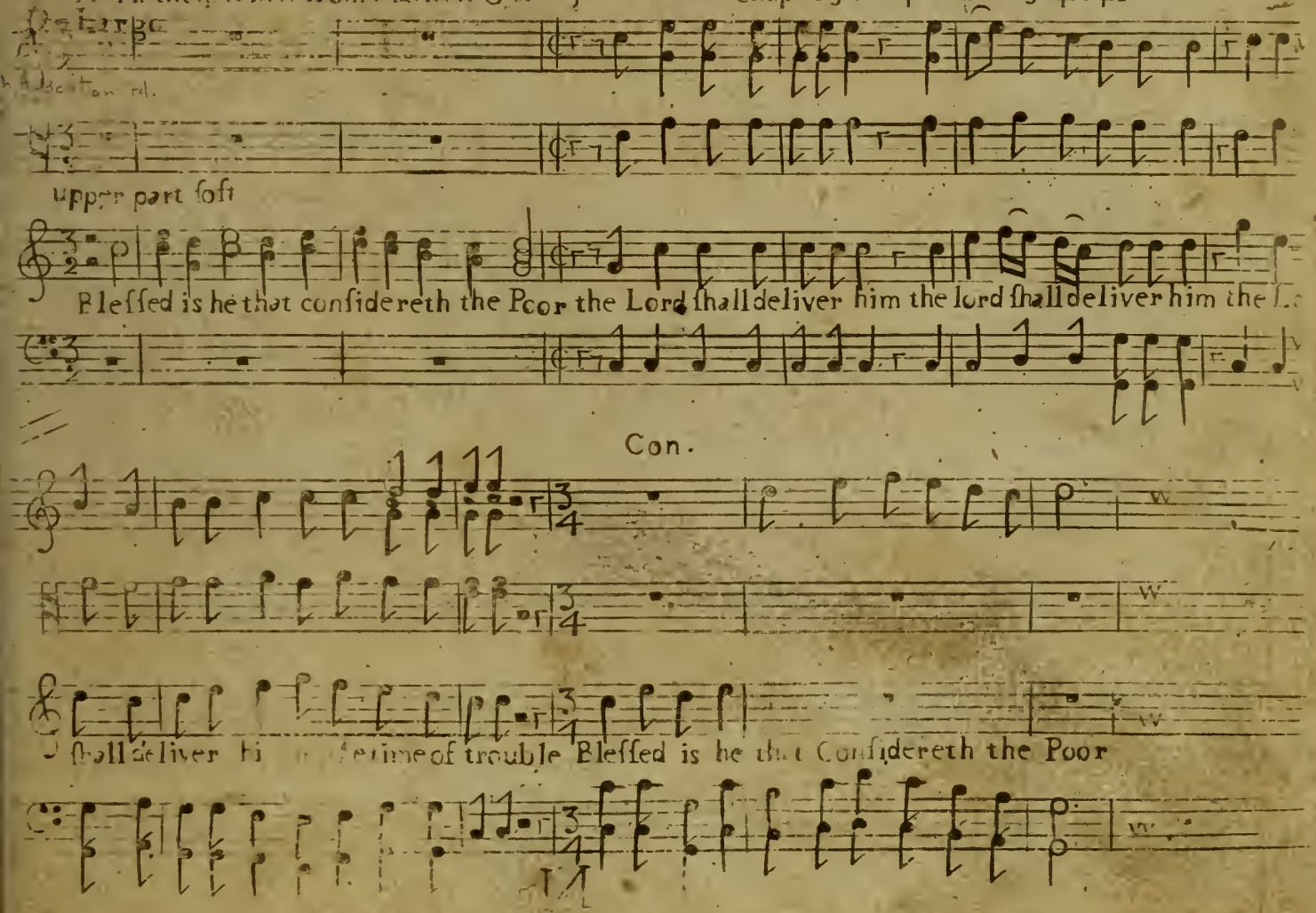
Haverill Pſalm 34 CM.

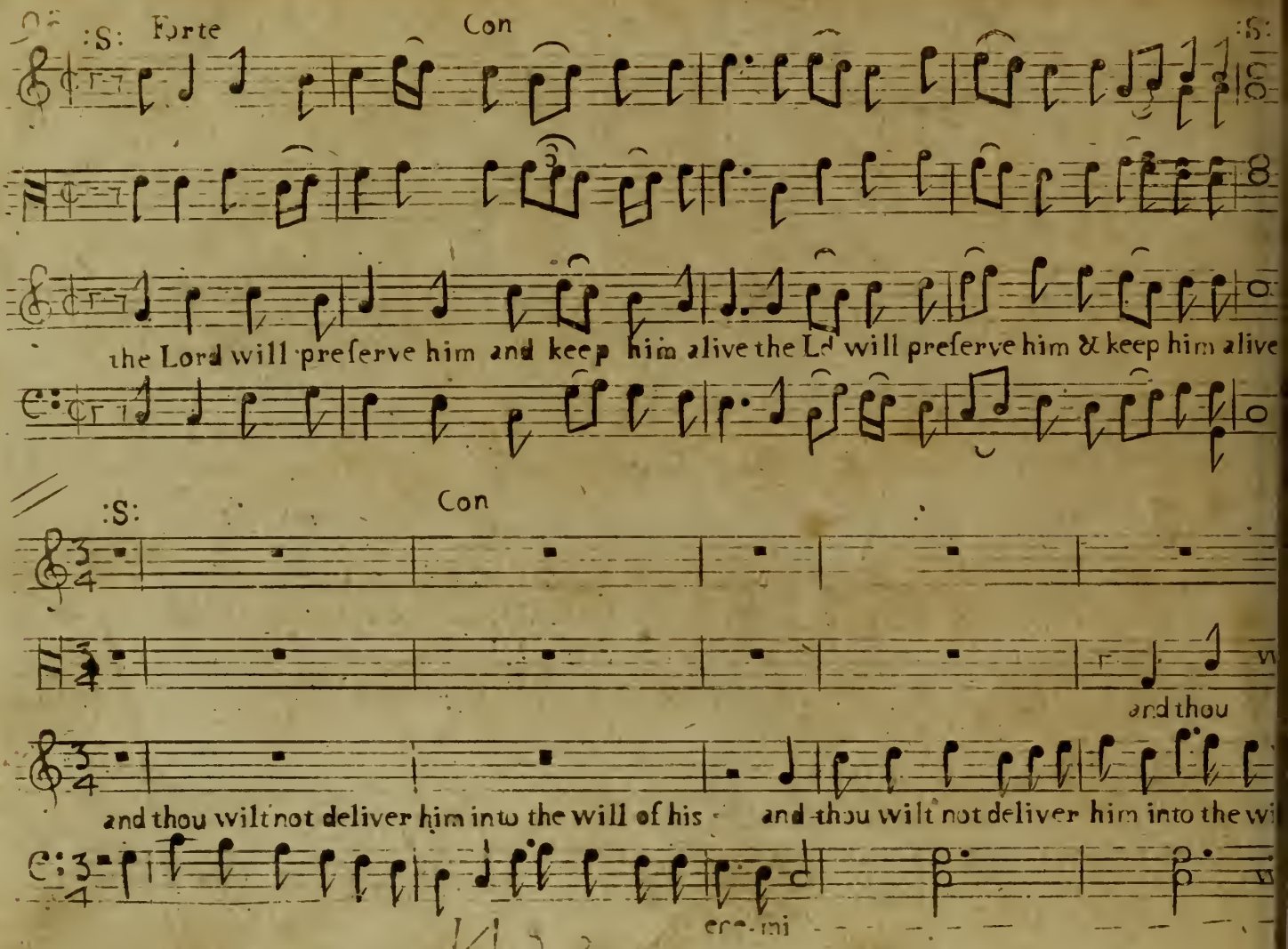


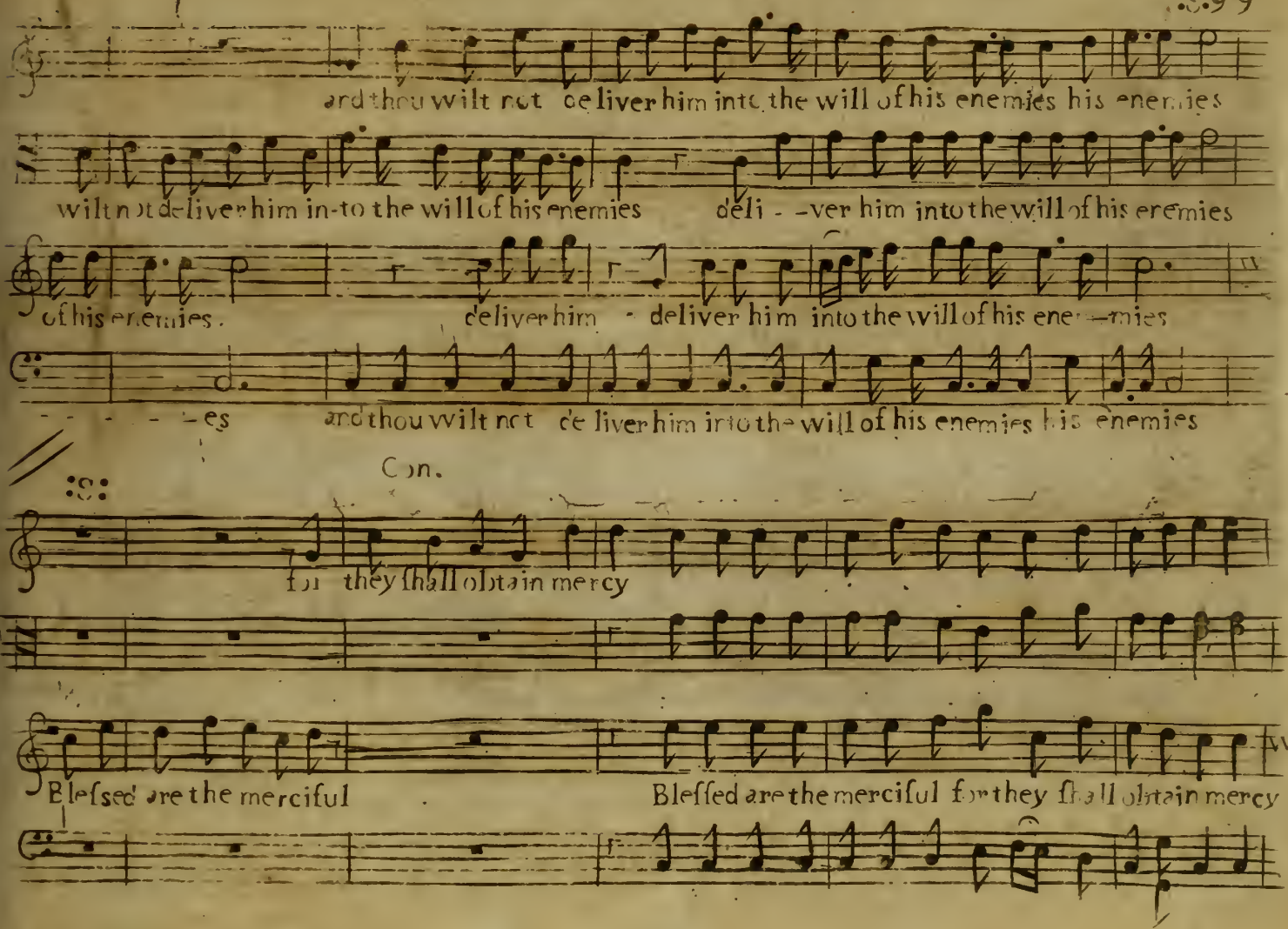
Ps. 87-108 lacking

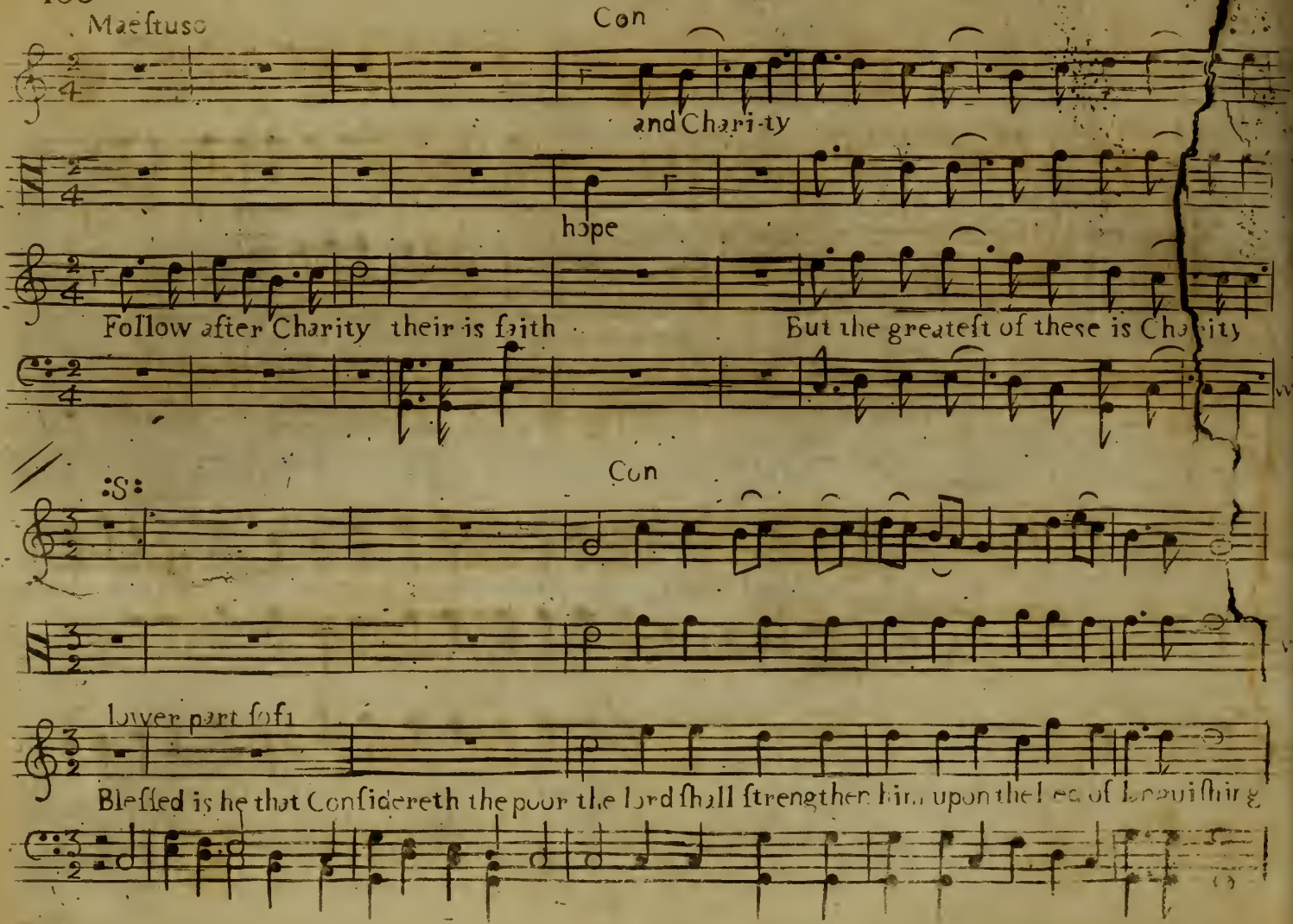
S[illegible] to be sung at Charity meeting -

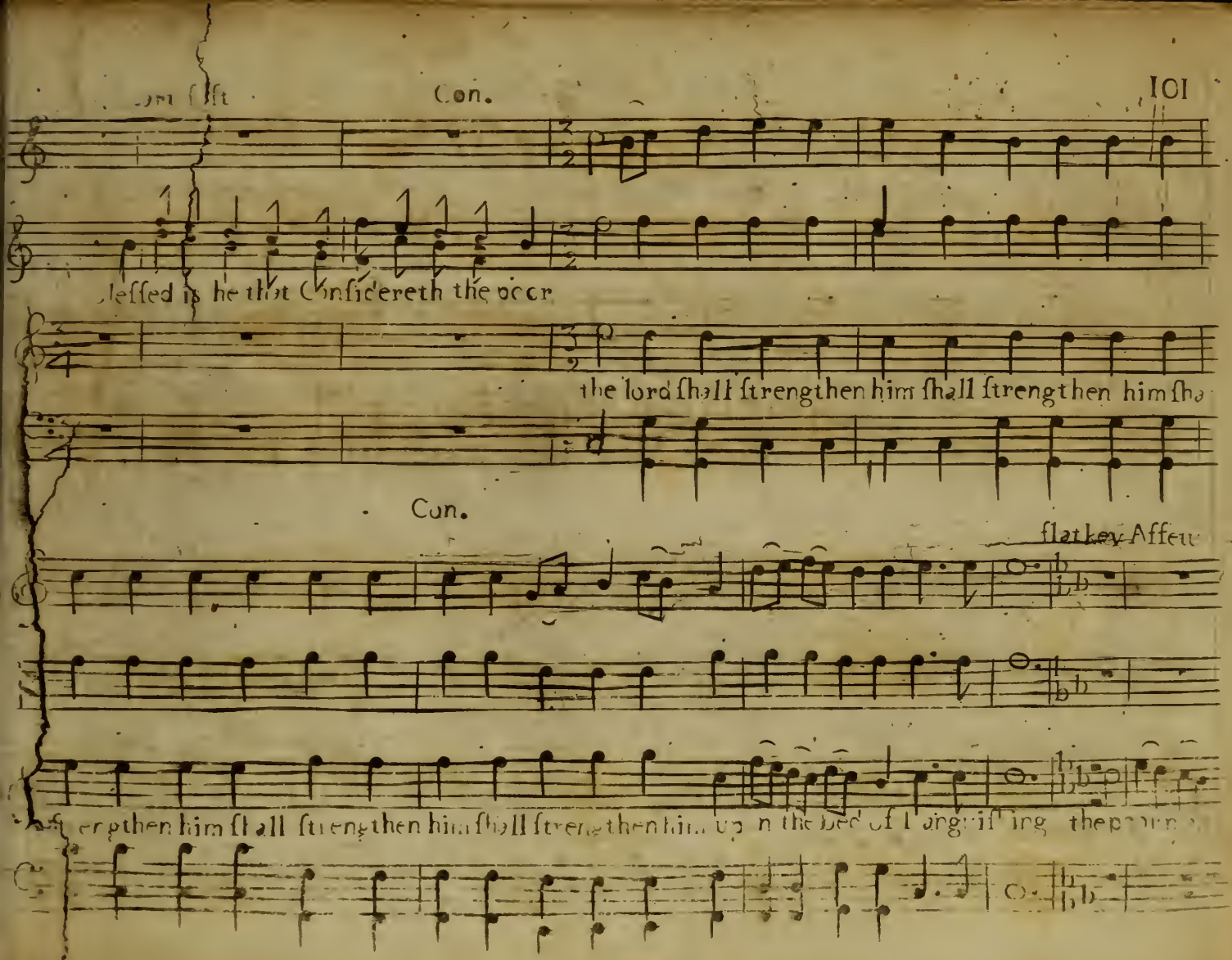
An Anthem taken from Mathew 5 & 25 1 Chorin Chap 13 & 14 Psalm 3 4 & 41

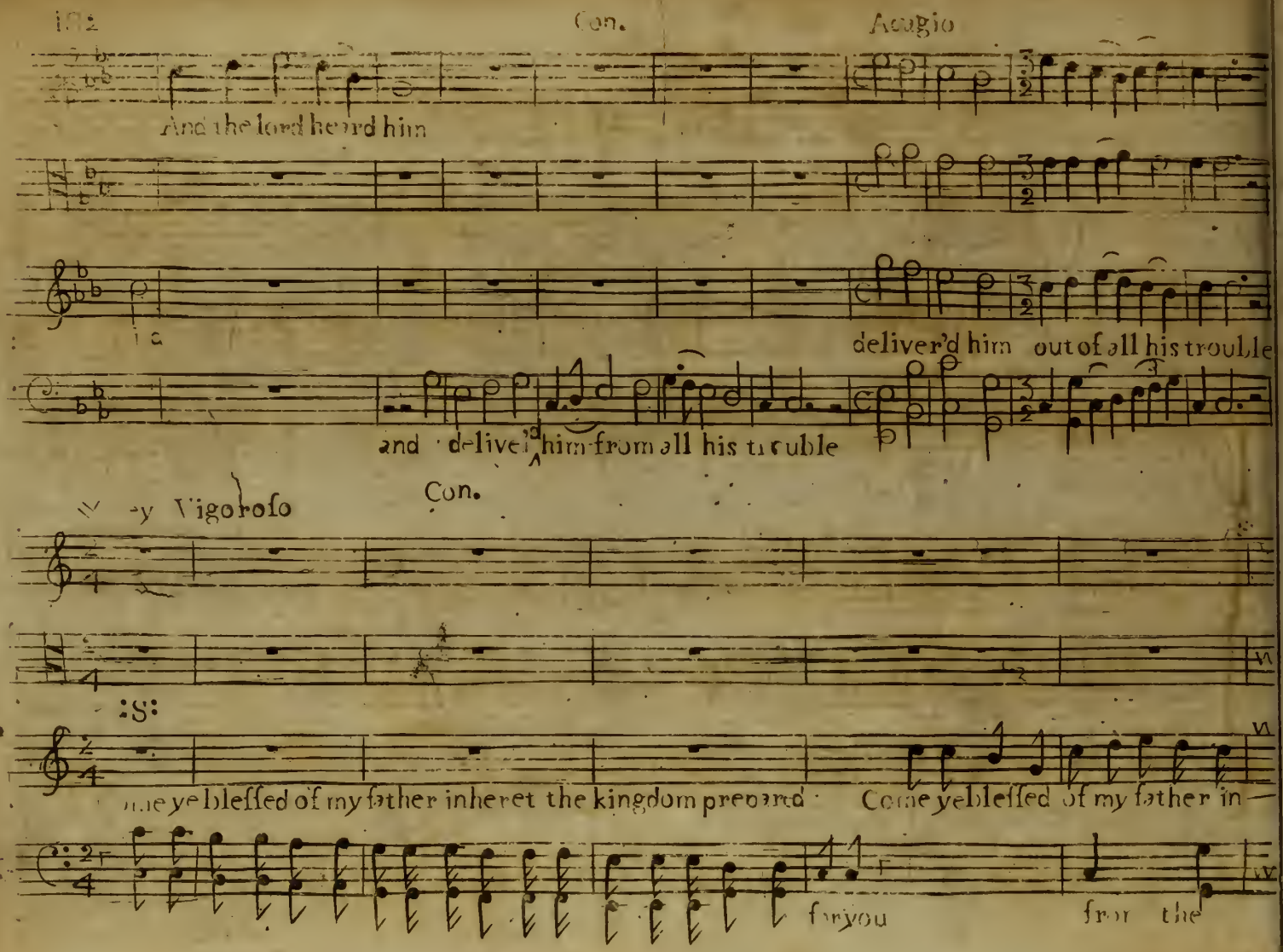


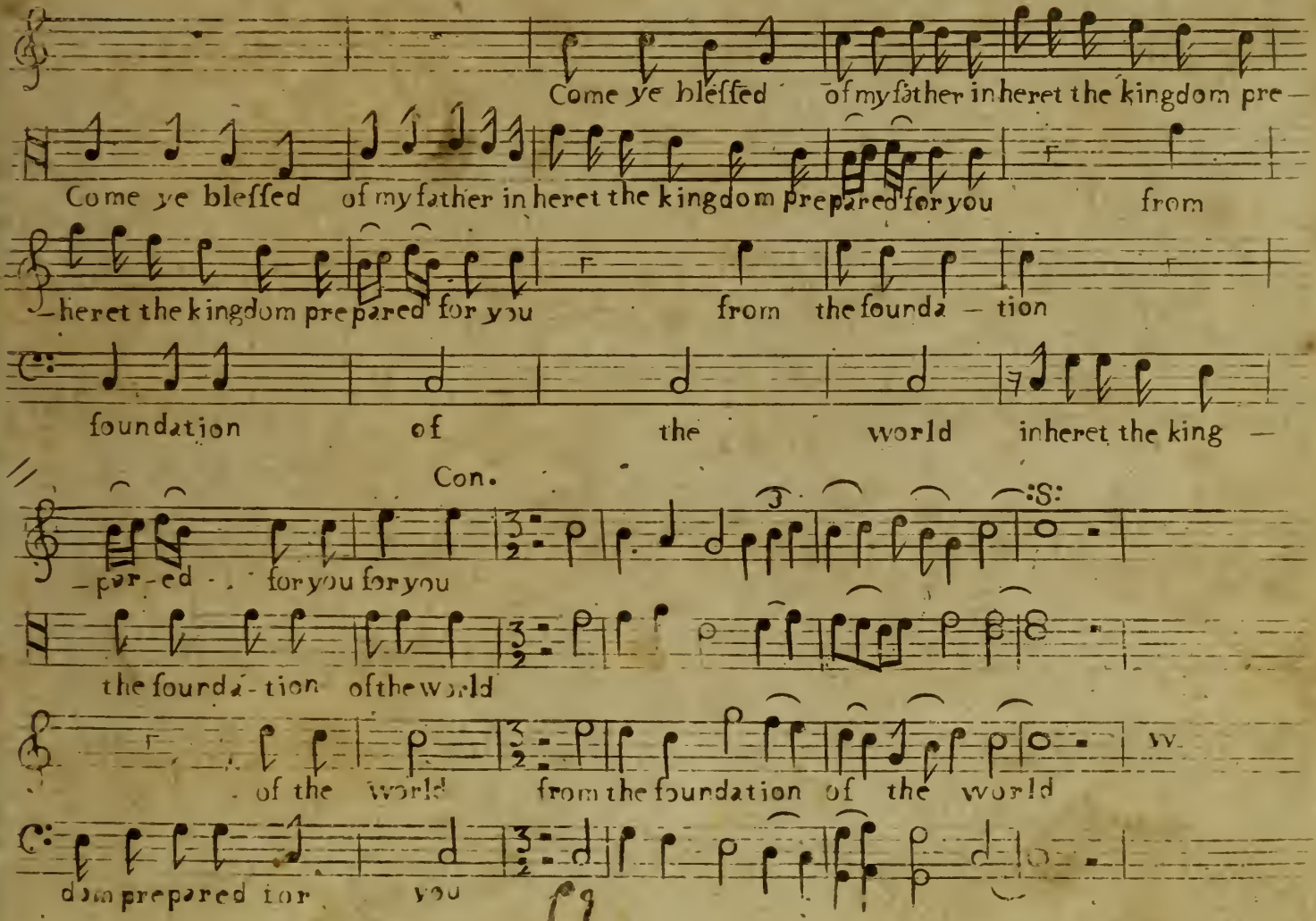

:S: Forte
Con
:S:
the Lord will preserve him and keep him alive the Lᵈ will preserve him & keep him alive
:S:
Con
and thou
and thou wilt not deliver him into the will of his
and thou wilt not deliver him into the wi
ene-mi


and thou wilt not deliver him into the will of his enemies his enemies
wilt not deliver him in-to the will of his enemies
deli - -ver him into the will of his enemies
of his enemies.
deliver him - deliver him into the will of his ene - -mies
- - - - -es
and thou wilt not de liver him into the will of his enemies his enemies
Con.
:8:
for they shall obtain mercy
Blessed are the merciful
Blessed are the merciful for they shall obtain mercy


Maeſtuso
Con
and Chari-ty
hope
Follow after Charity their is faith
But the greateſt of these is Charity
:S:
Con
lower part ſofi
Bleſſed is he that Conſidereth the poor the lord ſhall ſtrengther him upon the bed of languiſhing


Con.
Bleſſed is he that Conſidereth the poor
the lord ſhall ſtrengthen him ſhall ſtrengthen him ſha
Con.
flatkey Affeu
ſtrengthen him ſhall ſtrengthen him ſhall ſtrengthen him upon the bed of Languiſhing the p


Con.
Acagio
And the lord heard him
deliver'd him out of all his trouble
and delivered him from all his trouble
Con.
Vigoroso
:S:
me ye blessed of my father inheret the kingdom prepard
Come ye blessed of my father in—
for you
from the


Come ye bleſſed of my father in heret the kingdom pre —
Come ye bleſſed of my father in heret the kingdom prepared for you from
— heret the kingdom prepared for you from the founda — tion
foundation of the world in heret the king —
Con.
— par-ed for you for you
the founda-tion of the world
of the world from the foundation of the world
dom prepared for you

:S: flat key (Languiffiant) Con.

and ye gave me meat

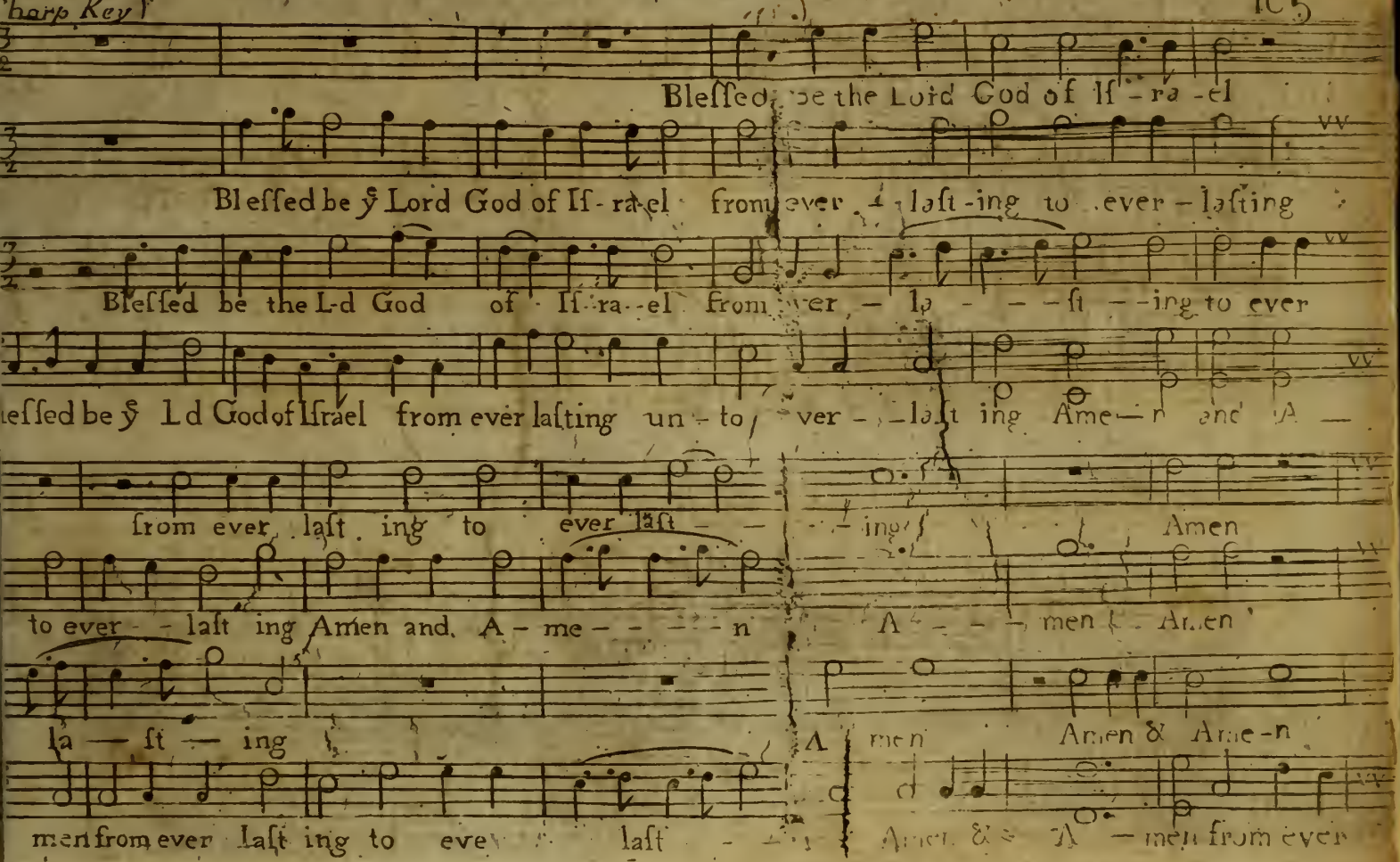
and I was a thirfty

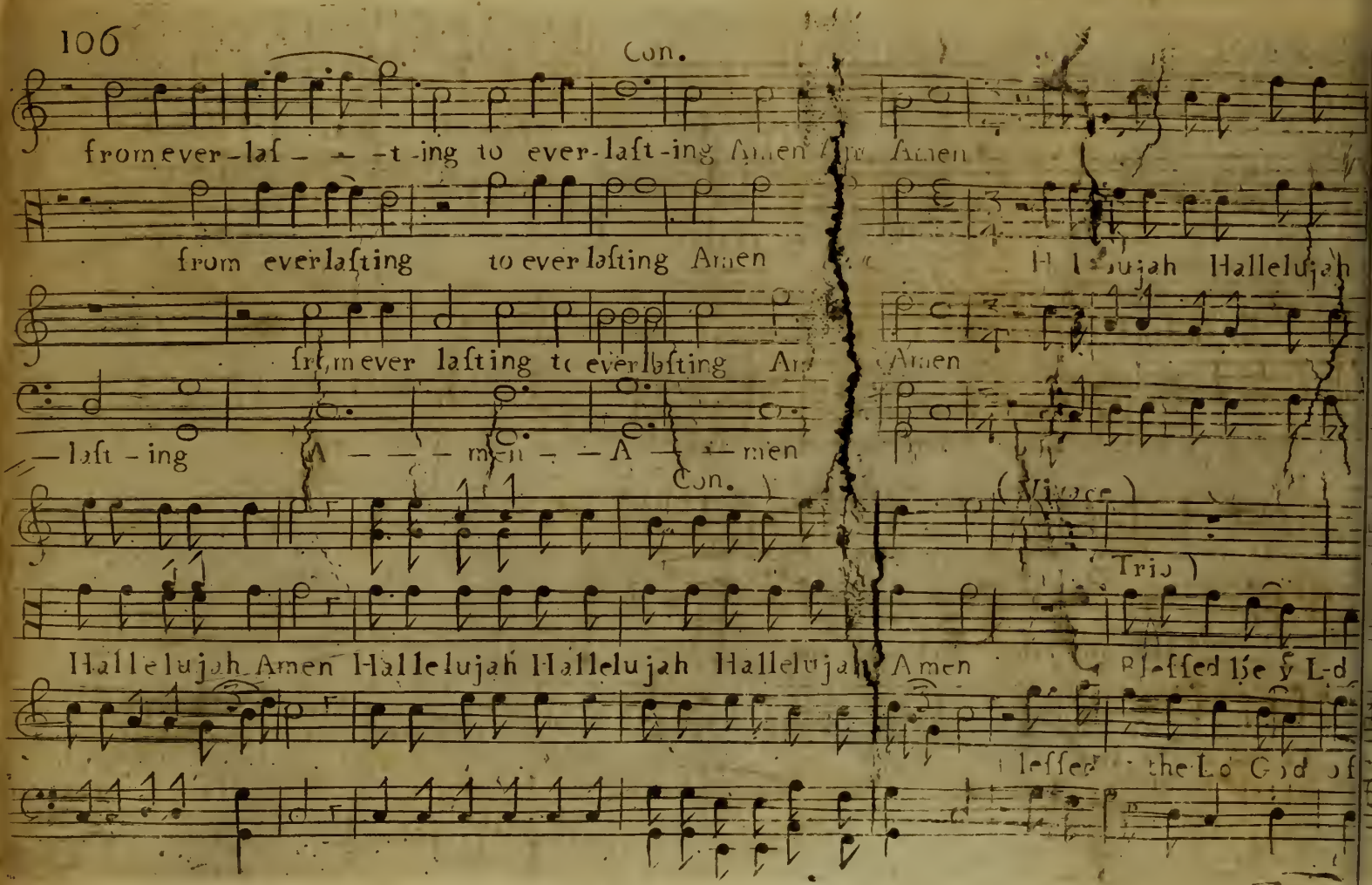
for I was an hungred

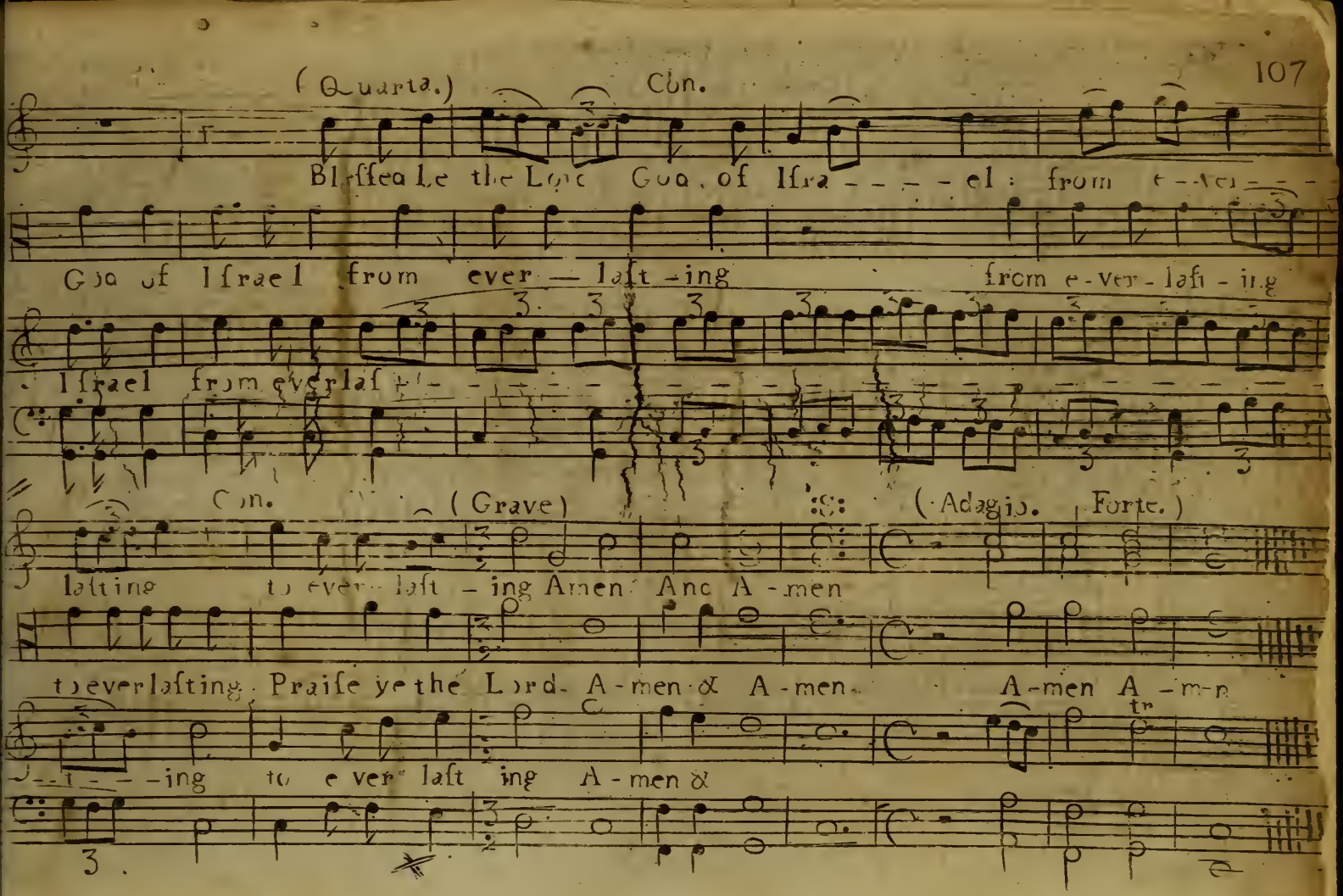
and ye gave me drink

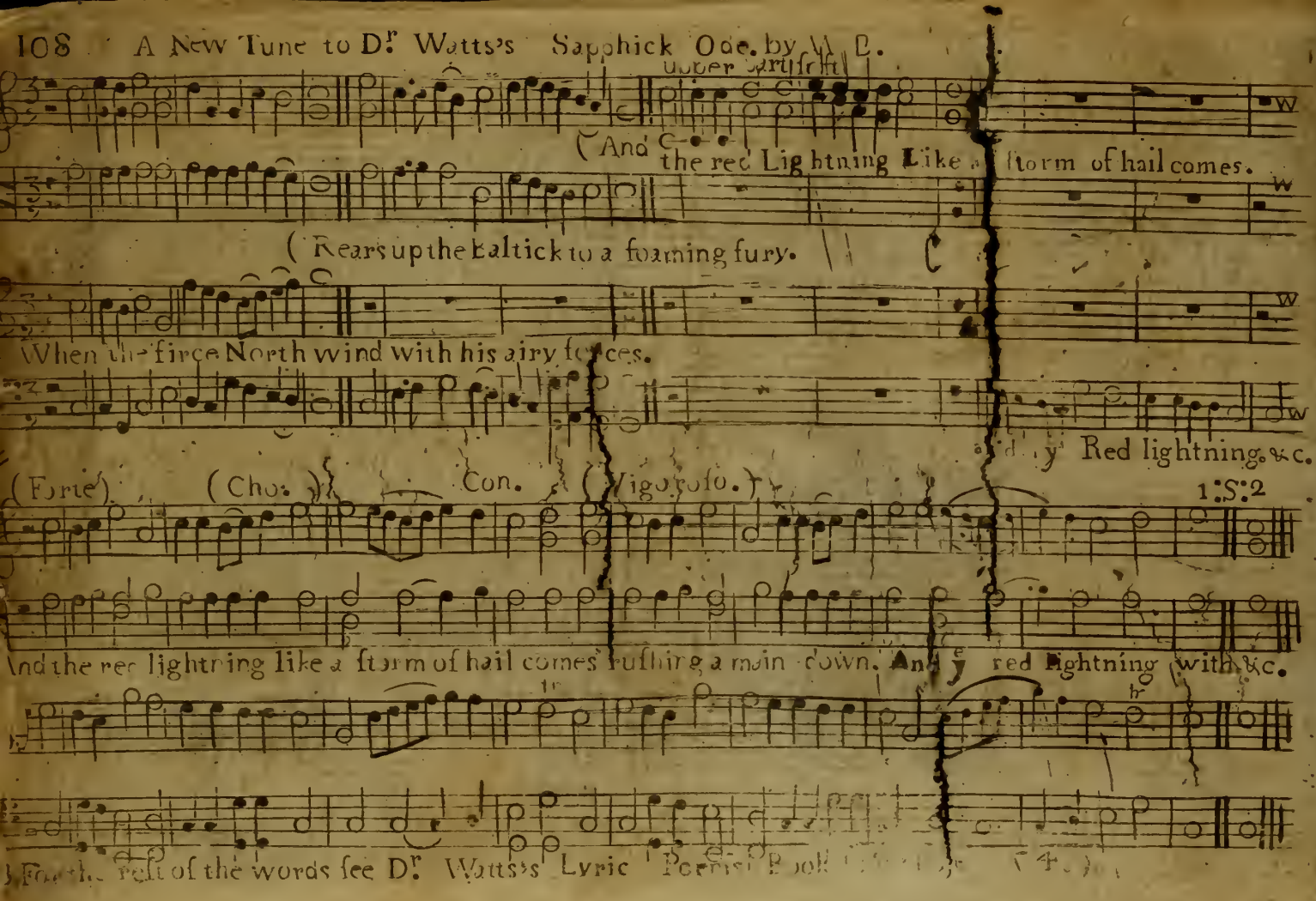
Freſto Con. :S:

for I was an hungered and ye gave me meat and I was a thirfty and ye gave me drink


Bleſſed be the Lord God of If - ra - el
Bleſſed be ỹ Lord God of If - ra - el from ever - laſt - ing to ever - laſting
Bleſſed be the L-d God of If - ra - el from ever - la - - - ſt - - ing to ever
leſſed be ỹ L d God of Iſrael from ever laſting un - to ver - - laſt ing Ame - n and A -
from ever laſt ing to ever laſt - - - ing Amen
to ever - laſt ing Amen and A - me - - - - n A - - - men Amen
la - ſt - ing A men Amen & Ame - n
men from ever laſt ing to eve laſt - - Amen & A - men from ever


Con.
from ever-laſ- -t-ing to ever-laſt-ing Amen
Amen
from everlaſting to everlaſting Amen
Hallelujah Hallelujah
from everlaſting to everlaſting Amen
Amen
-laſt-ing A- -men
Con.
(Vivace
Trio)
Hallelujah Amen Hallelujah Hallelujah Hallelujah Amen
Bleſſed be y L-d
Bleſſed the Lo God of


(Quarta.) Con.
Bleſſed be the Lord God of Iſra - - - - el: from e - ver - - -
God of Iſrael from ever - laſt - ing from e - ver - laſt - ing
Iſrael from everlaſt - - - - - - - - - - - - - - - - - -
Con. (Grave) (Adagio. Forte.)
laſting to ever - laſt - ing Amen. And A - men
to everlaſting. Praiſe ye the Lord. A - men & A - men. A - men A - men
- - - ing to e ver laſt ing A - men &
3.



For the rest of the words see Dr. Watts's Lyric Poems Book (4.)

☞ The Reader is desired to excuse my inserting the following Explanatory Piece so much out of Place, but the Reason is because it intirely slipt my Memory till the Introduction was Printed—it being very essential to be understood, I could not (in Justice to the Learner) omit it.

YOU will often meet with the Figures 1, 2. The Figure 1 standing over one Bar, and 2 over the next Bar, with a Repeat* standing between them ; it signifies that Strain from the Figure 1, to be repeated ; that is, you must look back from Figure 1, till you find a Repeat, and observe that in going over that Strain the second Time, you omit the Bar under Figure 1, and perform the Bar under Figure 2.—And you will find upon Examination, that it is so contriv'd, to make out full Bars, as for Example—suppose the Time to be $\frac{3}{2}$, and the Bar under Figure 1 contains but a Semibreve, then by borrowing a Minim out of the first Bar that is repeated, you fill the Bar under Figure 1 ; and you must take it for granted that the Bar under Figure 2, is, or ought to be full, without borrowing ; so that by omitting the Bar under Figure 1, in repeating, you have all Bars full.—For an Example of this Nature, I would refer you to Pumpily Tune. And oftentimes in plain Psalmody, where the Time is $\frac{1}{2}$, you will find but one Minim in the first Bar, and a Semibreve in the last Bar : And in this Case, they both make but one Bar ; so that by borrowing of each other, they may both be full, that is, if I beat two Beats down on the Semibreve, then in Singing the Tune the Second Time, I sing the Minim with my Hand up, it compleats the Bar ; and when you have sung the Tune as often as you propose, you must leave off with the Two Beats down, without raising your Hand, because unless you begin the Tune again, the Bar is Imperfect.

N. B. This Example holds good in $\frac{3}{4}$ and $\frac{3}{8}$.

* If the Repeat happens to be omitted the Figures are as Significant and Expressive as if it was inserted.

An HYMN compos'd by the Rev. Mr. WHITEFIELD, with design to be sung at his own Funer

And here inserted at the Request of a Number of his Friends.

Adapted to *Marshfield* Tune, p. 76, *Brookfield* ditto, p. 7, or *Westfield* ditto, p. 71.

I.

AH! lovely Appearance of Death!
No Sight upon Earth is so fair;
Not all the gay Pageants that breathe,
Can with a dead Body compare.

II.

With solemn delight I survey,
The Corpse when the Spirit is fled;
In love with the beautiful Clay,
And longing to lie in it's Stead.

III.

How blest is our Brother, bereft
Of all that could burthen his Mind!
How easy the Soul that hath left
This wearisome Body behind!

IV.

Of Evil incapable thou,
Whose Relicts with Envy I see;
No longer in Misery now,
No longer a Sinner like me.

V.

This Earth is affected no more
With Sickness or shaken with Pain;
The War in the Members is o'er,
And never shall vex him again.

VI.

No Anger hence forward, or Shame,
Shall redden this innocent Clay;
Extinct is the Animal Flame,
And Passion is vanish'd away.

VII.

This languishing Head is at rest,
Its thinking and aching are o'er;
This quiet immoveable Breast
Is heav'd by Affliction no more.

VIII.

This Heart is no longer the Seat
Of Trouble and tort[illegible]g Pain,
It ceases to flutter and beat,
It never shall flutter again.

IX.

The Lids he so seldom could close,
By Sorrows forbidden to sleep,
Seal'd up in eternal Repose,
Have strangely forgotten to weep.

X.

The Fountains can yield no Supplies,
These Hollows from Water are free,
The Tears are all wip'd from these Eyes,
And evil they never shall see.

XI.

To mourn and to suffer is mine,
While bound in a Prison I breathe,
And still for Deliverance pine,
And press to the Issues of Death.

XII.

What now with my Tears I bedew,
O! might I this Moment become!
My Spirit created anew,
My Flesh be consign'd to the Tomb.

An Alphabetical List of [illegible] Tunes, Anthems, and Canons, contained in this Bo[illegible]

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Blessed is he 97
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The Lord, descended 51

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WHEN Jesus wept 56
Thus saith the high 85