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CONCISE


DICTIONARY


OF MUSIC

Don Mich

# HARVARD CONCISE DICTIONARY OF MUSIC

*compiled by*

Don Michael Randel

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## PREFACE

THIS BOOK is intended to serve the needs of a variety of readers, including students of music history and performance, amateur musicians, and those who simply listen to music and occasionally read about it. Its subject is principally the tradition of Western concert music. The intersections of this tradition with others, however, have been so numerous, especially in the twentieth century, that a number of entries relating to non-Western music and to Western music outside the tradition of concert or "classical" music have also been included. Current popular music, however, is not among the subjects represented.

Biographical information is given for over 2,000 composers. It is my hope that most composers likely to be encountered in the histories of music now in general use as well as on concert programs, recordings, and radio will be found here. The amount of space devoted to each does not necessarily reflect a judgment about relative importance in the history of music; rather, I have tried in each case to give just enough facts about life and works to suggest the nature of the composer's career, and this has determined the length of entries. No attempt has been made to characterize the music of any composer with a few well-chosen adjectives. In the context of extreme brevity, such adjectives are likely at best to be amusing, at worst to impede further understanding of a composer's works.

Entries on compositions, instruments, and terms are based in large measure on the *Harvard Dictionary of Music*, second edition, by Willi Apel and others (Copyright © 1944 and 1969 by the President and Fellows of Harvard College; copyright © 1972 by Willi Apel). This material is often changed in form or substance here, however, and I am responsible for any resulting faults.

Alphabetization of entries is of the separate word type; thus, "Ballad opera" appears before "Ballade." Abbreviations consisting

of initial letters have been treated as a unit in alphabetizing; thus, "c.b." comes after "Cazzati" rather than after "c.a." Within entries, the asterisk (\*) refers the reader to other entries that bear directly on the entry at hand. The asterisk is not used, however, in conjunction with the name of any composer, since very few composers mentioned anywhere in the book do not have separate entries. And within the entries on composers, the asterisk is almost never used except with the titles of works. The reader may simply assume that terms such as *symphony*, *sonata*, and *motet* included in the entries on composers have entries of their own.

Titles of works are given in the original language if this is English, French, German, Italian, or Spanish. Otherwise they are most often given in English with the original in brackets immediately following. Foreign titles appearing as entries are followed by an English translation. Well-known English titles appear in the alphabet with cross references to the original titles. The dates of works are intended to be the dates of completion and/or publication unless otherwise indicated; for operas the city and date of first performance are given. However, since many of the sources I used to compile information do not always make clear whether a particular date is the date of composition, publication, or first performance, a similar ambiguity has been inevitable here. Dates of birth and death for Russian composers are given in new style unless otherwise indicated. Complete consistency in the spelling of Russian names has not been achieved, in part owing to the widespread use of spellings such as "Tchaikovsky." This composer will be found here among the T's rather than among the C's, as consistency would have dictated. Patronymics in the names of Russian composers have been routinely included. For other composers, names not normally used are printed in boldface type within parentheses. Alternative forms, pseudonyms, and the like are printed in normal type within parentheses.

Among the many sources consulted in compiling information on composers, the following were especially useful, and readers wishing further information may wish to turn to them as well: *Baker's Biographical Dictionary of Musicians*, fifth edition with 1971 supplement; *Contemporary American Composers: A Biographical Dictionary*, compiled by E. Ruth Anderson, 1976; *Dictionary of Contemporary Music*, edited by John Vinton, 1974; *Grove's Dictionary of Music and Musicians*, fifth edition; *Die Musik in Geschichte und Gegenwart*, of which 15 volumes have appeared since 1949; *Riemann Musiklexikon*, twelfth edition with 1972 and 1975 supplements.

Numerous people have been helpful in the preparation of this book, and I am grateful to all of them. Eve Adler gathered most of the material for the entries on composers. Vito Imbasciani also contributed to this effort. Laurie Shulman and Laurel Fay typed the first draft and offered many suggestions on matters of substance along the way. Steven Stucky and Christopher Rouse read portions of the manuscript and offered much valuable advice. The illustrations appearing here for the first time were prepared by Barbara Boettcher. With one exception, supplied by Steinway and Sons, the others were executed for the *Harvard Dictionary of Music*. Revision of the first draft and preparation of the final typescript and of the magnetic tape from which the book was printed were done through the facilities of the Office of Computer Services at Cornell University. George Cameron, of that office, was helpful and generous with his time beyond all reasonable expectations. Nothing said here could appropriately express my gratitude to my wife and children, whose most immediate, though not their most profound, contribution to this book was their patience.

*Don Michael Randel*

*Ithaca, New York*

## ABBREVIATIONS

abbr.	abbreviation, abbreviated	<i>LU</i>	<i>Liber usualis</i> , editions with
Arab.	Arabic		neumes, 1961; see Liturgical books.
b.	born		
bapt.	baptized	maj.	major
c.	circa	masc.	masculine
Cat.	Catalan	min.	minor
cent.	century	movt.	movement
Cz.	Czech	no.	number
d.	died	op.	opus
D.	Dutch	orch.	orchestra, orchestral
Dan.	Danish	perf.	performance, performed
E., Eng.	English	pl.	plural
Ex.	example	Pol.	Polish
F.	French	Port.	Portuguese
fem.	feminine	prod.	produced
fl.	flourished	Prov.	Provençal
G.	German	Ps.	Psalm
Gael.	Gaelic	pt.	part
Gr.	Greek	publ.	published
Hung.	Hungarian	rev.	revised
Icel.	Icelandic	Rus.	Russian
ill.	illustration	sing.	singular
incl.	include, including	Sp.	Spanish
It.	Italian	Swed.	Swedish
Jap.	Japanese	Univ.	University
L.	Latin	vol(s).	volume(s)

Pitches are designated according to the system, described under Pitch, in which middle C is represented by c', the C an octave lower by c, the C two octaves lower by C, and the C an octave higher by c''. Psalms are numbered according to both the King James and the Vulgate, as explained under Psalm.

# A

**A.** (1) See Pitch names; Letter notation; Hexachord; Pitch. (2) On the title page of \*partbooks of the 16th century *A* stands for \**altus*. In liturgical books it stands for \**antiphon*. (3) *A* [It.]; *à* [F.]. To, at, with; e.g., \**a piacere*; *a 2*, *a 3 voci*, etc. See *A due*.

**A battuta** [It.]. See *Battuta*.

**A bene placito** [It.]. \**A piacere*.

**A cappella** [It.]. Designation for choral music without instrumental accompaniment. Originally the term referred to unaccompanied church music; today it is used for both sacred and secular. Historians of the 19th century believed that all music before 1600 was *a cappella*. Recent investigations, however, have clearly shown that instruments played a prominent role in the performance of much early music, at least as an \**ad libitum* addition to or substitution for one voice-part or another. See also *Cappella*.

**A deux** [F.]. See *A due*.

**A due** [It.]. Direction in orchestral parts indicating that two instruments notated on one staff (e.g., Flutes 1 and 2) should play in unison (*all'unisono*) [see Unison]. However, the term is also used in the almost opposite meaning, synonymous with \**divisi*. The same ambiguity exists with the French term *à deux*. For *a due corde*, see *Due corde*. *A due mani*, for two hands. *A due voci* (*cori*, *strumenti*, etc.), for two voices (choirs, instruments, etc.).

**A la**. See *Al*; *Alla*.

**A peine entendu**. See *Peine entendu*, *à*.

**A piacere** [It.]. Indication for the performer to play according to his own pleasure, particularly with regard to tempo and the use of \**rubato*. See also *Ad libitum*.

**A tempo** [It.]. Indicates return to normal

tempo after deviations such as *ritenuto*, *più lento*, *ad libitum*.

**Ab** [G.]. Off, with reference to a \**mute* or an organ \**stop*.

**Abaco**, **Evaristo Felice dall'** (b. Verona, 12 July 1675; d. Munich, 12 July 1742). Violinist, cellist, and composer. From 1704 to his retirement in 1740, cellist and then *Kapellmeister* at the court in Munich. Composed numerous violin sonatas, trio sonatas, and concertos.

**Abandonné** [F.]; **con abbandono** [It.]. Unrestrained, free.

**Abbellimenti** [It.]. Embellishments, ornaments. See *Ornamentation*.

**Abbreviations**. For the most important abbreviations used in musical notation, see *Notation*.

**Abdämpfen** [G.]. To mute, especially kettledrums.

**Abduction from the Seraglio**. See *Entführung aus dem Serail*, *Die*.

**Abegg Variations**. Schumann's Variations for piano op. 1, dedicated to his friend Meta Abegg. The first five notes of the theme are a' b $\flat$ ' e'' g'' g''.

**Abel, Karl Friedrich** (b. Köthen, 22 Dec. 1723; d. London, 20 June 1787). Viola da gamba player and composer; pupil of J. S. Bach. Dresden court musician, 1748–58; chamber-musician to Queen Charlotte of England from 1765. Composed parts of several pasticcios (incl. *Love in a Village*, London, 1760, and *Berenice*, London, 1764); overtures and symphonies; string quartets; harpsichord sonatas.

**Abendmusik** [G.]. Evening musical performances, usually of a religious or contemplative nature. The term applies particularly to the famous concerts started in 1763 by Dietrich Buxtehude in the Marienkirche of Lübeck. These took place annually on the five Sundays be-



fore Christmas, following the afternoon service, and consisted of organ music and pieces of sacred music for orchestra and chorus. They continued until 1810.

**Abgesang** [G.]. See under *Bar* form.

**Abnehmend** [G.]. Diminuendo. See *Crescendo*, *decrecendo*.

**Abschieds-Symphonie** [G., Farewell Symphony]. Popular name for Haydn's Symphony no. 45 in F# minor, composed in 1772. It refers to the last movement, whose closing section is so designed that the players can leave one by one, the last measures being played by only two violins. This jest was meant to inform Prince Esterházy, whom Haydn served as a conductor, of the orchestra's desire to leave his summer palace in the country and return to Vienna.

**Abschnitt** [G.]. Section of a piece.

**Absetzen** [G.]. (1) To separate, either notes [*détaché*; see *Bowing* (b)] or phrases. (2) In 16th-century terminology, *absetzen in die Tabulatur* means to transcribe (vocal music) into \**tablature*.

**Absil, Jean (Nicolas)** (b. Bonsecours, Belgium, 23 Oct. 1893; d. Brussels, 2 Feb. 1974). Pupil of Gilson. Music director of the Académie de musique at Etterbeck, 1922–64; professor at the Royal Conservatory of Brussels, 1930–59. Composed ballets; symphonies and symphonic poems; concertos for piano, for violin, for viola; cantatas; string quartets and other chamber music.

**Absolute music.** Music that is free from extramusical implications. The term is used most frequently in contradistinction to \**program music*, which is inspired in part by pictorial or poetic ideas. It usually excludes vocal music, especially the type in which the text clearly influences the musical language and structure (e.g., a song by Schubert).

**Absolute pitch.** Properly, the position of a tone in reference to the whole range of pitch as determined by its rate of vibration. Usually, however, the term is used for what might more accurately be called absolute judgment of (absolute) pitch, i.e., the capacity of a person to identify a musical sound immediately by name,

without reference to any previously sounded pitch [see *Relative pitch*]. This faculty, also called *perfect pitch*, is a tonal memory that is sometimes innate. In some cases it can be acquired by training.

**Abstossen** [G.]. (1) In violin playing, same as *abgestossen*, i.e., *détaché* [see *Bowing* (b)]. (2) In organ playing, to take off a \**stop*.

**Abstract music.** \**Absolute music*.

**Abstrich** [G.]. Down-bow. See *Bowing* (a).

**Abt, Franz** (b. Eilenburg, near Leipzig, 22 Dec. 1819; d. Wiesbaden, 31 March 1885). Conductor at the Brunswick court, 1852–82; toured to Paris, London and Russia (1869), and America (1872). Composed operas; 7 secular cantatas; numerous songs (incl. "Wenn die Schwalben heimwärts zieh'n").

**Abzug** [G.]. \**Scordatura*. Also, older term for \**appoggiatura*.

**Academic Festival Overture.** See *Akademische Festouvertüre*.

**Academy.** A term used for scholarly or artistic societies and musical organizations of various types. The rediscovery, in the late 15th century, of Greek antiquity and Greek literature led to the foundation in 1470 of an *Accademia di Platone* at the court of Lorenzo de' Medici in Florence, in direct imitation of Plato's Academy. In the 16th century a number of academies were established in France, among them Baif's *Académie de poésie et musique* (1567), which played a role in the development of the \**vers mesurés*. With the beginning of the 17th century, the movement spread widely in Italy: every city of some repute had its *accademia*, and larger cities had several. They were of two types: (a) learned societies founded for the promotion of science, literature, and the arts, part of whose activity was the encouragement and cultivation of music; (b) organizations of professional and amateur musicians whose sole purpose was the cultivation of music. Today there are many similar institutions, some no longer using the name "academy." The term is now also

used synonymously with *school* and *\*conservatory*.

**Accelerando, accelerato** [It.; abbr. *accel.*]. Becoming faster; faster.

**Accent.** (1) Emphasis on one pitch or chord. An accent is *dynamic* if the pitch or chord is louder than its surroundings, *\*tonic* if it is higher in pitch, and *\*agodic* if it is of longer duration. In measured music, the first beat of each *\*measure* is the strong or metrically accented beat. The creation of regularly recurring accents of this type depends on the manipulation of groups of pitches or chords (e.g., according to the principles of *\*tonality*) and not solely on the placement of dynamic, tonic, or agodic accents. Thus, the strong beat in a measure need not necessarily be louder, higher, or longer than the remaining weak beats. When the regular recurrence of metrical accents is contradicted (e.g., by means of loudness, pitch, or duration), *\*syncopation* results. See Dynamic marks; Notation.

(2) [F.]. In French music of the 17th and 18th centuries, an ornament belonging to the class of the *\*Nachschlag*. In Bach's table of ornaments (in the *Klavierbüchlein für Wilhelm Friedemann Bach*), a long *\*appoggiatura*.

(3) Any of the signs used in ancient Greek writing to indicate a change of pitch of the voice in recitation: *accentus acutus* (´), for a rise; *a. gravis* (˘), for a lowering; *a. circumflexus* (ˆ), for an inflection (rise, followed by a lowering) of the voice. These signs are now thought to be the origin of the accent *\*neumes* and certain other related systems of notation, called *\*ecphonetic notation*.

(4) Any of the notational signs, *ta'amim*, used in Jewish chant [see *Ecphonetic notation*].

**Accentuation.** The proper placement of *\*accents*, especially in music set to a text. See *Declamation*.

**Accentus, concentus.** Terms, perhaps used first by Ornthoparchus (in his *Musicae activae micrologus*, 1517), for two opposite types of *\*plain-song*: the simple recitations, such as lesson tones, psalm tones (*accentus*); and the chants having distinctive melodic contours, such as an-

tiphons, responsories, hymns, Mass chants (*concentus*). The terms also imply a distinction between two kinds of performer: the *accentus* is sung by the priest; the *concentus* by the trained musicians (*schola*, with soloists and choir).

**Acciaccatura.** Italian name for an ornament of keyboard (harpsichord) music (c. 1675–1725) that calls for the playing, together with the normal note, of a neighboring tone (usually the lower second), which is to be released immediately "as if the key were hot" (Gemiani). This ornament usually occurs in connection with chords, the chords often including two and occasionally even three *acciaccatura* tones. The tones are written as ordinary notes, so that the chord takes on the appearance of an extremely dissonant *\*tone cluster* [Ex. 1].



The French counterpart is the *arpège-mment figuré*, in which the dissonant tone (usually only one) is indicated by a diagonal dash; as the name implies, it is performed as an *\*arpeggio* [Ex. 2]. For an incorrect usage of the term, common in modern writings, see *Appoggiatura*.

**Accidentals.** The signs used in musical notation to indicate chromatic alterations or to cancel them. The alterations valid for the entire composition are contained in the *\*key signature*, while the term *accidentals* refers specifically to those alterations introduced for single notes. The signs for chromatic alteration, together with their names in English, French, German, Italian, and Spanish, are given in the following table:

	#	b	x
E.	sharp	flat	double sharp
F.	dièse	bémol	double dièse
G.	Kreuz	Be	Doppelkreuz
It.	diesis	bemolle	doppio diesis
Sp.	sostenido	bemol	doble sostenido

	♯	♮
E.	double flat	natural
F.	double bémol	bécarre
G.	Doppel-Be	Auflösungszeichen, Quadrat
It.	doppio bemolle	bequadro
Sp.	doble bemol	becuadro

The sharp raises the pitch one semitone, the flat lowers it one semitone; the double sharp and double flat raise and lower two semitones, respectively; the natural cancels any of the other signs. The use of the compound signs ♯♯, ♭♭, or ♯♭ to cancel partly or entirely a previous ♯ or ♭ is common but unnecessary. The simple signs ♯, ♭, and ♮ can serve this purpose. In modern practice a sign affects the note immediately following and is valid for all the notes of the same pitch (but not in different octaves) within the same measure. Some modern composers add bracketed accidentals to those demanded by this rule in order to clarify complicated passages or chords, and some specify that each accidental applies only to the note immediately following it.

For the problem of accidentals in music of the 13th to 16th centuries, see *Musica ficta, musica falsa*.

**Accolade** [F.]. \*Brace.

**Accompagnato** [It.]. Accompanied. See *Recitative*.

**Accompaniment**. The musical background provided for a principal part. In piano music, the left hand often plays chords that are an accompaniment for the melody played by the right hand. Similarly, a solo singer or instrumentalist may be accompanied by a pianist or an orchestra.

**Accord** [F.]. (1) \*Chord. (2) Manner of tuning, especially of such instruments as the lute, for which various systems of tuning were in use during the 17th century. See also *Scordatura*.

**Accordare** [It.]; **accorder** [F.]. To tune.

**Accordatura** [It.]. \*Accord (2).

**Accordion**. A portable musical instrument consisting of two rectangular headboards connected by a folding bellows. Inside the headboards are metal tongues that act as free-beating reeds. The instrument has pushed-out and drawn-in

reeds, the former sounding when the headboards are moved outward, the latter when they are moved inward. The modern accordion has a keyboard on the right side for playing melody notes, while buttons on the left side operate bass notes and full chords. See ill. under *Wind instruments*. The earliest instruments of this type were made by Buschmann (1822), Buffet (1827), and Damian (1829).

A similar instrument, preferred in England, is the *concertina*, invented by Wheatstone in 1829. It is hexagonal in shape and has a number of buttons on each side. The *bandoneon* is a related square instrument invented by Band in the 1840s and still popular in Argentina.

**Accordo** [It.]. \*Chord.

**Accusé** [F.]. With emphasis.

**Achromatic**. \*Diatonic.

**Achron, Joseph** (b. Łódź, Lithuania, 13 May 1886; d. Hollywood, Calif., 29 Apr. 1943). Violinist and composer. Pupil of Liadov. Settled in the U.S. in 1925. Composed various works on Hebrew subjects (incl. *Hebrew Melody*, for violin and orchestra, 1911); 3 violin concertos; chamber music.

**Achtel, Achtelnote; Achtelpause** [G.]. Eighth note; eighth rest. See *Notes*.

**Achtfuss** [G.]. Eight-foot (stop). See *Foot* (2).

**Acis and Galatea**. A dramatic cantata composed by Handel (about 1720) for the Duke of Chandos. Originally designated a \*masque, \*pastorale (pastoral play), or \*serenata, it was intended to be sung in costume but without action.

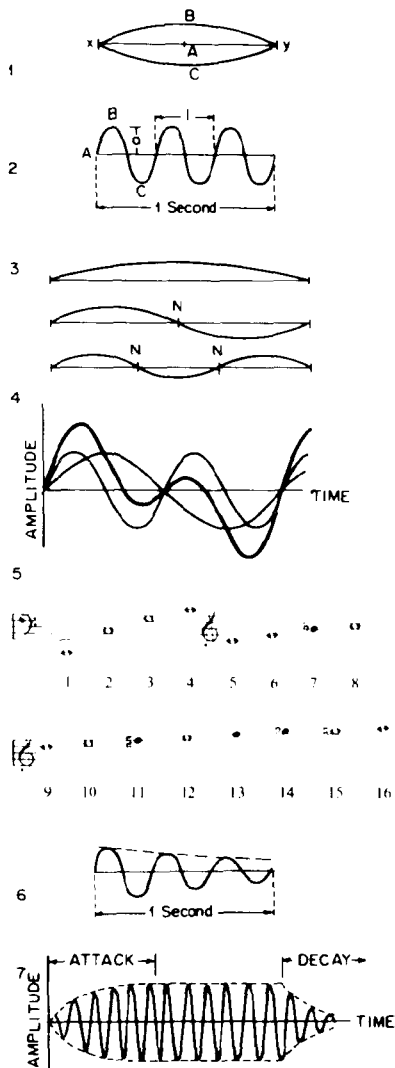
**Acoustic**. A term often used to distinguish instruments from their electric counterparts, especially guitars.

**Acoustic bass** (also called resultant bass). On organs, a 32-foot stop that is obtained as a differential tone of a 16-foot stop and a 10 2/3-foot stop. According to the acoustic phenomenon of the differential tones [see *Combination tone*], the simultaneous sounding of C (produced by the 16-foot) and of G (produced by the 10 2/3-foot) produces the tone C<sub>1</sub> (32-foot).

The acoustic bass is frequently used where the expense of the large 32-foot pipes is prohibitive.

**Acoustics.** The science that treats of sounds and therefore describes the physical basis of music. Perceived musical sounds are usually described in terms of \*pitch, \*timbre, \*loudness, and \*duration, and each of these perceived characteristics of musical sound has some basis in physically measurable acoustical phenomena. The human hearing apparatus is itself, moreover, a physical instrument with its own properties and limitations. The relationship between the perceived characteristics of musical sound and physically measurable acoustical phenomena is thus not always simple and direct, and many aspects of this relationship are still not well understood. The human perception of sound is touched on in the entries for pitch, timbre, and loudness.

Sounds are produced by vibrating systems that transmit their *vibrations* through some medium (such as air, though liquids, solids, and other gases can also serve this purpose) to the ear (or some other receiving instrument). For musical purposes, the most common vibrating systems are built upon strings or columns of air. If, for example, a string is stretched between points X and Y and its midpoint A is displaced to point B and released, it will vibrate in such a way that its midpoint repeatedly traverses the course A-B-A-C-A, as illustrated in Fig. 1, assuming for the moment the absence of friction, stiffness in the string, and the like. If one then imagines that the midpoint of the string is a point of light and that a light-sensitive paper is passed along the string at a steady speed, in a direction parallel to the length of the string, and in a plane parallel to the plane in which the string is vibrating, the vibrations of the string can be understood as represented by waves traced by the midpoint like those of Fig. 2. The distance  $l$  encompasses one complete wave or vibration, during which the midpoint of the string has traversed the course A-B-A-C-A, and is thus called the *wavelength*. The number of complete waves (or vibrations or cycles, as they are also called) occurring per unit of time is the *frequency* of



vibration and is measured in cycles per second. (A cycle per second is also called a *Hertz*, abbr. *Hz.*, after the German physicist Heinrich R. Hertz.) The distance  $a$  is the *amplitude* of vibration. The frequency  $f$  of a string of length  $L$  meters; stretched at a tension of  $T$  newtons, and with a mass  $m$  kilograms per meter of length is expressed as follows:

$$f = \frac{1}{2L} \sqrt{\frac{T}{m}}$$

From this relationship it can be seen that if the tension and mass of a string remain constant, the frequency will rise as the length of the string is reduced. Similarly, if the length and mass remain constant, the frequency will rise with increases in the string's tension. In practical terms, this means that if a violinist shortens a vibrating string by stopping it at some point on the fingerboard, the frequency of vibration is increased. It is this increase in frequency that accounts for the listener's perception of higher pitch. Similarly, if the tension of an open string is increased by means of the tuning peg, an increase in frequency is produced and thus a higher pitch.

This relationship also shows that frequency is unrelated to amplitude, which depends on the amount of energy imparted to the string when it is set in motion and is thus related to the amount of energy that the string can impart to the surrounding medium. This energy, measured in watts per square meter at any point, is the *intensity* of the sound. An increase in intensity produces a sense of increased loudness, though the ear is not equally sensitive to changes in intensity over the whole range of either frequencies or intensities that it can detect. (At some extremes of frequency, intensity seems also to affect the perception of pitch.) In practical terms, if a violin string is plucked with increased force, that is if the point at which it is plucked is displaced a greater distance from the line that describes the string at rest, the amplitude of vibration is increased, and with it the intensity of the sound produced and the loudness perceived, while the pitch remains constant.

The entire length of the string described above is vibrating as a single segment and is thus producing a single frequency. This mode of vibration and the resulting frequency are given the name *fundamental*. Strings and most other vibrating systems, however, generally vibrate in several modes simultaneously. In the case of strings, these modes consist in the vibration of segments shorter than the total length of the string. Thus, strings can vibrate in halves, thirds,

fourths, and so on. Fig. 3 shows each of the first three modes of vibration of a string. In any single mode of vibration, all of the vibrating segments are of equal length and are called *loops*. The points (N) between loops, where for a given mode the string is stationary, are called *nodes*.

Because each mode of vibration results from a division of the string into some integral number of segments of equal length, it follows from the expression for frequency given above that the several modes of vibration will produce frequencies that are integral multiples of the fundamental frequency. Thus, when the string vibrates in halves, the frequency produced will be twice the fundamental, when in thirds the frequency will be three times the fundamental, and so forth. A series of frequencies consisting of a fundamental and ascending through integral multiples of it in this way is called a *harmonic series*. The fundamental is called the first *harmonic*, the frequency that is twice the fundamental is called the second harmonic, and so on. Frequencies above the fundamental in this series are also sometimes called *overtones*, the first overtone being the second harmonic, and so forth. (Many vibrating systems used in making music also produce inharmonic frequencies.)

In practice, then, a single string or other vibrating system used in music produces a series of discrete frequencies (called *partials*) simultaneously and thus a series of discrete pitches. But since the fundamental usually has much the greatest intensity, the ear, while assimilating all of the frequencies present, recognizes only the pitch of the fundamental. The presence or absence of the remaining harmonics and their relative intensities contribute to what the ear perceives as the *timbre* or *tone color* of the fundamental pitch. The vibrations producing each of these remaining harmonics can be represented as a wave of a certain length and amplitude, and the waves representing all of the frequencies present in a steadily sounding tone can be added together to produce a single complex *waveform* that describes the tone with respect to what is heard as both pitch and timbre. Fig. 4 shows the waveform resulting from the addition of

the first and second harmonics where the two are of equal amplitude. Another way of representing such a tone is as a *spectrum*, each line of which represents the intensity of a particular harmonic.

It will be seen from Fig. 3 that a string can be set in motion in such a way as to emphasize one or another of the harmonics. If, for example, the string is plucked at its midpoint, the first harmonic or fundamental will be emphasized and the second deemphasized, since the midpoint is a node for the second harmonic. Similarly, plucking or bowing the string closer to the end will tend to emphasize one or more of the higher harmonics with respect to the fundamental. Differences in the point at which the string is plucked or bowed are heard as differences in timbre.

The physical characteristics of instruments, like the means by which vibrations are produced in them, affect the relative intensities of the harmonics and thus the waveform or spectrum of the tones produced. The spectrum does not, however, remain the same for pitches throughout the range of a given instrument. Instead, it appears that at least some instruments have one or more regions of frequencies in which harmonics are emphasized no matter what the frequency of the fundamental. Such regions, called *formants*, may be an important element in the production of what is perceived as timbre.

The pitches produced by the frequencies in the harmonic series form intervals with the fundamental that are said to be *natural*, or harmonically or acoustically pure. Except for the octaves thus produced (whose frequencies are related to the fundamental by powers of 2), these are not the intervals of the tempered scale used in Western tonal music [see Temperament]. Fig. 5 shows the pitches corresponding to the first 16 harmonics of the tone C. The pitches represented in black notes and thus the intervals that they form with the fundamental are distinctly out of tune with respect to the corresponding pitches of equal temperament. This suggests that there are clear limits to the extent to which the major scale, and by extension the system of Western tonality, can be derived from the harmonic or overtone series. The

pitches of the harmonic series represented in white notes are those of \*just intonation, and, except for the octaves, they too differ from those of equal temperament. For the sizes of the intervals occurring in the harmonic series as compared with those of other systems such as equal temperament, see Intervals, calculation of.

Vibrating columns of air can be understood to function in ways analogous to those described for vibrating strings. Here, the configuration of the pipe containing the column and the means by which the column is set in motion will determine the character of the waveforms produced. For example, a pipe stopped at one end produces only the odd-numbered harmonics. Suffice it to note, in addition, that the pitches that can be produced with a pipe of fixed length, such as a bugle or natural trumpet, are those of the harmonic series as illustrated in Fig. 5, the fundamental being determined by the length of the pipe; see Wind instruments.

The steady tones thus described might be produced on some ideal string free of the effects of stiffness and friction or on a continuously bowed string or continuously blown wind instrument. In practice, however, musical sounds have beginnings and endings of distinctive character, since the physical characteristics of instruments and the medium in which they operate make it impossible for the vibrations that characterize the steady tone to begin or end instantaneously. Plucked or struck instruments, such as the piano, in fact produce no steady tone at all. From the moment they are first produced, the sounds made by these instruments begin to die away or decrease in amplitude. This decrease in amplitude is called the *decay* of a sound and can be represented by a wave like that of Fig. 6, where the amplitude decreases with each cycle. The rate and character of decay is then illustrated by the curve connecting the peaks of successive cycles. Similarly, a curve can be drawn to illustrate the building up or *attack* of a sound from the point at which the system is first put in motion to the point at which the steady tone is reached. Taken together, the attack and decay characteristics of a given sound

are called its *envelope* (Fig. 7). This feature of musical sounds differs significantly from one instrument to the next and is quite important in the ear's identification of instrumental timbres.

See also Beats; Combination tone, resultant tone; Consonance, dissonance; Intervals, calculation of; Loudness; Pitch; Resonance; Temperament.

**Act tune.** See Entr'acte.

**Action.** Any mechanism used in instruments as a means of transmitting the motion of the fingers (or feet) to the sound-producing parts. For ill. of the piano's action, see Piano.

**Actus tragicus** [L.]. An early cantata (no. 106) by Bach, composed in Mühlhausen (1707–8) for an occasion of mourning. The German title is *Gottes Zeit ist die allerbeste Zeit* (God's Time Is Best).

**Ad libitum** [L.]. An indication that gives the performer liberty to: (1) vary from strict tempo (contrast a *\*battuta*); (2) include or omit the part of some voice or instrument (contrast *\*obbligato*); (3) include a *\*cadenza* according to his own invention.

**Adagietto** [It.]. (1) A tempo somewhat faster than *\*adagio*. (2) A short composition in slow tempo.

**Adagio** [It.]. (1) Slow, between *\*andante* and *\*largo*. See Tempo marks. (2) A composition in slow tempo, especially the second (slow) movement of a sonata, symphony, etc.

**Adagissimo** [It.]. Extremely slow.

**Adam, Adolphe-Charles** (b. Paris, 24 July 1803; d. there, 3 May 1856). Pupil of Boieldieu. Composed ballets (incl. *\*Giselle*); 53 operas, mostly comic (incl. *Le postillon de Longjumeau*, Paris, 1836); numerous songs.

**Adam de la Hale** (Halle) (b. Arras, c. 1240; d. Naples, 1286 or 1287). In 1271, entered the service of Robert II of Artois, whom he followed to Naples in 1283. Composed numerous monophonic songs; 16 *rondeaux* for 3 voices; several motets for 3 voices; 2 dramatic works, *Le jeu de Robin et de Marion* and *Le jeu de la Feuillée*.

**Adam of St. Victor** (b. Brittany, 12th cent.; d. Paris, 1177 or 1192). Augustinian monk, poet, and composer. Lived in the Abbey of St. Victor in Paris and composed both text and music of numerous *prosaes* [see Sequence (2)].

**Added sixth.** The pitch a sixth above the root when added to a *\*triad*, or the entire chord thus obtained; e.g., c–e–g–a. Chords of this type are common in jazz and popular music, in which context they are often designated, e.g., C6. They are not to be confused with any of the chords described under Sixth chord.

**Additional accompaniment.** Revisions or enlargements, particularly those made in the 19th century, of earlier orchestral scores. In many instances the original intention of the composer is misunderstood or disregarded. Handel's *Messiah* has been particularly unfortunate in this regard. Mozart was among the first to make a more modern arrangement of it.

**Adelaide.** A song by Beethoven (op. 46), composed in 1795 or 1796 to words by F. von Matthisson.

**Adelaide Concerto.** A violin concerto attributed to Mozart and edited by Marius Casadesus from a violin part dedicated to the French Princess Adélaïde. The orchestral accompaniment was added by Casadesus. Although it is known that Mozart did write such a piece for the princess, it is almost certain that this is not the work.

**Adeste, Fideles** [L.]. A Latin hymn usually sung today in the English translation beginning "O come, all ye faithful." The words and music are attributed to John F. Wade, and it was published in 1750 for use in the English Roman Catholic College in Lisbon; hence, the tune name "Portuguese Hymn."

**Adieux, Les** [F.]. Beethoven's Sonata for piano op. 81a, in E $\flat$  major (1809), entitled (in full) *Les adieux, l'absence, et le retour* (Farewell, Absence, and Return). Also known as the Farewell Sonata, it was inspired by the Archduke Rudolf's departure from Vienna.

**Adler, Samuel** (b. Mannheim, 4 Mar. 1928). Pupil of Piston, Thompson, and

Hindemith. Teacher at the Eastman School of Music from 1966. Composed an opera, *The Outcasts of Poker Flat*, after Bret Harte, 1959; 5 symphonies and other orch. works; choral works (incl. the cantata *The Vision of Isaiah*, 1949); synagogue services; string quartets and other chamber music; piano pieces; songs.

**Adriana Lecouvreur.** Opera in four acts by F. Cilea (libretto after E. Scribe and Legouv  ), produced in Milan, 1902. Setting: Paris, 1739.

**Aeolian, aeolian mode.** See under Church modes.

**Aeolian harp.** An instrument consisting of a long narrow box with six or more gut strings stretched inside over two bridges. If the box is placed in a free current of air (preferably in an open window), the strings vibrate and produce a large variety of harmonics over the same fundamental. The sound varies considerably with the changing force of the wind. The instrument enjoyed special popularity about 1800.

**Aeolopantalon.** An instrument invented in 1825 by Joz   Dlugosz in Warsaw; it was a combination of a harmoniumlike instrument (*aeolomelodikon*, with brass tubes affixed to the reeds) and a piano, which could be used in alternation. It is remembered largely because the young Chopin played on it in various recitals.

**Aequalstimmen** [G.]. (1) The eight-foot pipes of the organ. (2) \*Equal voices.

**Aerophon.** See Aerophor.

**Aerophones.** See Instruments.

**Aerophor.** A device invented by B. Samuel in 1912 that provides the player of a wind instrument with additional air from a small bellows operated by the foot. By means of a tube with a mouthpiece, air can be supplied to the player's mouth whenever his breath is not sufficient for long-held tones or long melodies in full legato. R. Strauss wrote passages requiring this device, as in his *Alpensinfonie* (where it is incorrectly called "aerophon").

**Affable** [It.]. Gentle, pleasing.

**Affannato, affannoso** [It.]. Excited, hurried, agitated.

**Affections, doctrine of** [also doctrine of affects; G. *Affektenlehre*]. An aesthetic theory of the baroque period. With respect to music, it was treated in greatest detail by J. Mattheson (*Der vollkommene Capellmeister*, 1739), who enumerates more than 20 affections and describes how they should be expressed in music, e.g.: "Sorrow should be expressed with a slow-moving, languid and drowsy melody, broken with many sighs." A basic principle is that each composition (or, in the case of composite forms, each movement) should embody only one affection.

**Affektenlehre** [G.]. See Affections, doctrine of.

**Affetti** [It.]. The term appears in the title of various publications of the late 16th and early 17th centuries (*Dolci affetti*, 1582; S. Bonini, *Affetti spirituali . . . in stile di Firenze o recitativo*, 1615; B. Marini, *Affetti musicali*, op. 1, 1617; G. Stefani, *Affetti amorosi*, 1621), probably to emphasize the affective character of the music. It is also used in early violin sonatas to designate certain types of ornaments [see Ornamentation].

**Affettuoso** [It.]. Affectionate, tender.

**Affinales** [L.; sing. *affinalis*]. In medieval theory of the \*church modes, the pitches a, b, and c', which occur as the finals of transposed chants.

**Affrettando** [It.]. Hurrying.

**Africaine, L'** [F., *The African Woman*]. Opera in five acts by Meyerbeer (libretto by E. Scribe), produced in Paris, 1865. Setting: Lisbon and Madagascar, end of the 15th century.

**Afternoon of a Faun, The.** See *Pr  lude    "L'apr  s-midi d'un faune."*

**Agazzari, Agostino** (b. Siena, 2 Dec. 1578; d. there, 10 Apr. 1640). Theorist and composer. *Maestro di cappella* at the Siena Cathedral from 1630. Composed Masses, motets, and church music for voices and instruments; a pastoral drama (*Eumelio*, 1606); madrigals. His *Del sonare sopra il basso*, 1607, is one of



the earliest treatises on the realization of a figured bass.

**Agende** [G.]. The liturgical book containing the entire ritual of the German Protestant Church.

**Agevole** [It.]. Easy, smooth.

**Agiatamente** [It.]. With ease.

**Agilmente** [It.]. Nimble, with agility.

**Agitato** [It.]. Excited.

**Agnus Dei** [L., Lamb of God]. The last item (except for the *Ite, missa est*) of the Ordinary of the \*Mass; therefore, the final movement in Mass compositions.

**Agogic**. An \*accent is said to be agogic if it is effected not by dynamic stress or by higher pitch but by longer duration of the note. The German term *Agogik* (translated "agogics") is used to denote all the subtleties of performance achieved by modification of tempo, as distinct from *Dynamik* (dynamics), i.e., gradations that involve variety of loudness.

**Agon** [Gr., Contest]. Ballet by Stravinsky (choreography by George Balanchine), produced in New York, 1957.

**Agréments** [F.]. The ornaments introduced in French music of the 17th century and finally adopted into all European music; generally indicated by stenographic signs or notes in small type. See Ornamentation.

**Agricola, Alexander** (b. Flanders, c. 1446; d. Valladolid, Spain, 1506). Served the Duke of Milan, 1472-74, and Philip I ("Philip the Handsome") of Burgundy and Spain from 1500. Composed Masses, motets, and numerous chansons.

**Agricola, Johann Friedrich** (b. Dobitzschen, near Altenburg, 4 Jan. 1720; d. Berlin, 2 Dec. 1774). Organist, theorist, and composer. Pupil of Quantz and J. S. Bach. Court composer to Frederick the Great from 1751 and director of the royal chapel, succeeding K. H. Graun, from 1759. Composed 8 operas; church music; keyboard music; arrangements of the King's compositions.

**Aguilera de Heredia, Sebastián** (b. Aragón, c. 1565; d. Zaragoza, 1627). Organist at the Huesca Cathedral, 1585-1603,

then *maestro de música* at the Zaragoza Cathedral. Composed works for organ; polyphonic psalms and Magnificats.

**Aichinger, Gregor** (b. Regensburg, 1564; d. Augsburg, 21 Jan. 1628). Pupil of Lassus and G. Gabrieli. Served as *Kapellmeister* and vicar of the Augsburg Cathedral. Composed Masses and other sacred vocal works, some with instruments.

**Aida**. Opera in four acts by Verdi (libretto by A. Ghislanzoni), commissioned by the Khedive of Egypt for the celebration of the opening of the Suez Canal and produced in Cairo, 1871. Setting: Egypt under the Pharaohs.

**Air**. (1) French 17th- and 18th-century term for song in general [see Chanson]. (2) In French opera and ballet of the 17th and 18th centuries, an instrumental or vocal piece designed to accompany dancing but not cast in one of the standard dance patterns such as the minuet or gavotte. (3) In \*suites written about and after 1700, a movement, found in the optional group, of a melodic rather than dancelike character. (4) See Ayre. (5) Any tune, song, or \*aria.

**Air de cour** [F.]. A type of short strophic song, sometimes with a refrain, for one or more voices usually with lute or harpsichord accompaniment, cultivated in France in the late 16th and in the 17th centuries. The songs are in simple syllabic style, and some texts are in \*vers mesuré. See also Vaudeville.

**Ais, aisis** [G.]. A-sharp, A-double-sharp; see Pitch names.

**Akademische Festouvertüre** [G., Academic Festival Overture]. Orchestral composition by Brahms, op. 80, written for the University of Breslau in appreciation for the degree of doctor of philosophy conferred on him in 1879. It includes several German student songs.

**Akathistos** [Gr.]. A famous hymn of the Byzantine Church, in honor of the Virgin.

**Akimenko, Feodor Stepanovich** (b. Kharkov, 20 Feb. 1876; d. Paris, 3 Jan. 1945). Pupil of Rimsky-Korsakov, 1895-1900, at the St. Petersburg Conservatory.