

## The Orchestra (*from Wikipedia.com*)

An **orchestra** is a musical ensemble used most often in classical music. A small orchestra (about forty players) is called a *chamber orchestra*.

A full size orchestra (about 104 players) may sometimes be called a "**symphony orchestra**" or "philharmonic orchestra"; these prefixes do not necessarily indicate any strict difference in either the instrumental constitution or role of the orchestra, but can be useful to distinguish different ensembles based in the same city (for instance, the London Symphony Orchestra and the London Philharmonic Orchestra). A symphony orchestra will usually have over eighty musicians on its roster, in some cases over a hundred, but the actual number of musicians employed in a particular performance may vary according to the work being played, and the size of the venue. A leading chamber orchestra might employ as many as fifty members; some are much smaller than that.

### Instrumentation and proportions

The typical symphony orchestra consists of four proportionate groups of similar musical instruments, generally appearing in the musical score in the following order (with proportions indicated):

- the **woodwinds**: 2 flutes\*, piccolo, 2 oboes\*, English horn, 2 clarinets\*, bass clarinet, 2 bassoons\*, contrabassoon.
- the **brass**: 2 to 6 French horns\*, 2 to 5 trumpets\*, 2 trombones, bass trombone, tuba\*
- the **percussion**: timpani\*, snare drum\*, bass drum\*, celesta, etc.
- the **strings**: harp(s), 16 to 30 (or more) violins\*, 8 to 12 (or more) violas\*, 8 to 12 (or more) cellos\*, 5 to 8 (or more) double basses\*.
- the **keyboards**: often a piano\* or perhaps a harpsichord. Less frequently an organ may be employed.
- Occasionally, traditional wind ensemble instruments appear, such as the saxophone and euphonium.

Instruments (and their minimum number) marked with an \*asterisk above are considered "core" symphonic instruments, and only in rarest of cases are not called for in most symphonic literature. Other instruments listed above are considered "auxiliary" instruments and are less frequently required, but still referred to as "standard". Late 19th-century symphonic works calling for *all* the auxiliary instruments, as well as a large number of strings, usually include the phrase "*for large orchestra*" in their full titles. Example: Richard Strauss' Ein Heldenleben.

### Beethoven's influence

The so-called "standard complement" of 'double winds and brass' in the orchestra from the first half of the 19th century is generally attributed to the forces called for by Beethoven in his symphonic works. With the exception of his Fourth Symphony and Violin Concerto (which specify the singular *Flauto*), the composer's instrumentation almost always included paired flutes, oboes, clarinets, bassoons, horns and trumpets. The expansion of this particular timbral "palette" in Symphonies 3, 5,

6 and 9 is carefully calculated by Beethoven for an innovative effect. The third horn in the "Eroica" Symphony arrives to provide not only some harmonic flexibility, but also the effect of "choral" brass in the Trio. Piccolo, contrabassoon and trombones add to the triumphal finale of his opus 67. A piccolo and a pair of trombones help deliver storm and sunshine in the Sixth. The mighty Ninth asks for a second pair of horns, for reasons similar to the Eroica; Beethoven's use of piccolo, contra, trombones and extra percussion (beyond the timpani), along with voices in his finale, are his earliest suggestion that the timbral boundaries of "symphony" might be expanded for good. But for several decades after his departure, **symphonic instrumentation** was faithful to Beethoven's well-established model, with few exceptions.

## Expanded instrumentation and personnel

Additional instruments are not considered standard but are *scored* occasionally. Examples of these instruments include the saxophone, flugelhorn, cornet, euphonium, glass harmonica, wagner tuba, bells, cowbell, accordion, theremin, ondes martenot, mandolin, guitar, organ, and harmonium. For example, saxophones are called for in a limited range of 19th and 20th century repertoire. While appearing only as featured solo instruments in some works, as in Maurice Ravel's orchestration of Modeste Mussorgsky's Pictures at an Exhibition, other Ravel works such as his *Bolero* contain writing for the sax as a member of the orchestral ensemble. Similarly, the euphonium is featured in a few Romantic and 20th century works, and cornets appear in Tchaikovsky's ballet *Swan Lake*, Claude Debussy's *La Mer*, and several orchestral works by Hector Berlioz. Unless these instruments are played by members doubling with another instrument (for example, a trombone player changing to euphonium for a certain passage), orchestras will use freelance musicians to enable them to authentically present works which require instrumentalists that they do not have on staff. For instance, while most larger orchestras do employ a harpist, those that don't, or that require a second harp for a larger work, will hire non-roster players to assist in those performances.

## Organization

Between the instrument groups and within each group of instruments, there is a generally accepted hierarchy of leadership. Every instrumental group (or section) has a principal (or soloist) who is generally responsible for playing solos within and leading the group. The violins are divided into two groups, first violin and second violin, and therefore have two principals. The principal first violin is called the concertmaster (or leader) and is considered the leader of not only the string section, but of the entire orchestra, subordinate only to the Conductor.

The principal trombone is considered the leader of the low-brass (trombone, bass-trombone, tuba) section, while the principal trumpet is generally considered the leader of the entire brass section. Similarly, the principal oboe (or sometimes the principal flute) is considered the leader of the entire woodwind section. The horn, while technically a brass instrument, often acts in the role of both woodwind and brass. Most sections also have an Assistant principal (or Co-principal, or Associate principal), or in the case of the first violins, an Assistant concertmaster, who often plays a tutti part in addition to replacing the principal in his or her absence.

A tutti (or section) player generally plays either a unique but non-solo part (in the case of winds, brass and percussion), or in unison with a group (in the case of the strings). Where a solo part is

called for in a string section, for example in the violins, that part is invariably played by the section leader.

In modern times, the musicians are usually directed by a conductor, although early orchestras did not have one, using instead the concertmaster or the harpsichordist playing the continuo for this role. Some modern orchestras also do without conductors, particularly smaller orchestras and those specialising in historically accurate performances of baroque music and earlier.

The most frequently performed repertoire for a symphony orchestra is Western classical music or opera. However, orchestras are sometimes used in popular music, and are also used extensively in film music.

## **History of the orchestra**

### **Early history**

In the 15th and 16th centuries in Italy the households of nobles had musicians to provide music for dancing and the court, however with the emergence of the theatre, particularly opera, in the early 17th century, music was increasingly written for groups of players in combination: which is the origin of orchestral playing. Opera originated in Italy, and Germany eagerly followed. Dresden, Munich and Hamburg successively built opera houses. At the end of the 17th century opera flourished in England under Henry Purcell, and in France under Lully, who with the collaboration of Molière also greatly raised the status of the entertainments known as ballets, interspersed with instrumental and vocal music.

In the 17th century and early 18th century instrumental groups were taken from all of the available talent. A composer such as Johann Sebastian Bach had control over almost all of the musical resources of a town, whereas Handel would hire the best musicians available. This placed a premium on being able to rewrite music for whichever singers or musicians were best suited for a performance—Handel produced different versions of the *Messiah* oratorio almost every year.

As nobility began to build retreats from towns, they began to hire standing bodies of musicians. Composers such as the young Joseph Haydn would have, then, a fixed body of instrumentalists to work with. At the same time, travelling virtuoso performers would write concerti that featured their skills, and travel from town to town, arranging concerts from whoever was there. The aristocratic orchestras worked together over long periods of time, making it possible for ensemble playing to improve over time.

### **The Mannheim School: form follows function**

This change, from civic music making where the composer had some degree of time or control, to smaller court music making and one-off performance, placed a premium on music that was easy to learn, often with little or no rehearsal. The results were changes in musical style and emphasis on new techniques. Mannheim, Germany had one of the most famous orchestras of that time, where notated dynamics and phrasing, previously quite rare, became standard (see Mannheim school). It also attended a change in musical style from the complex counterpoint of the baroque period, to an

emphasis on clear melody, homophonic textures, short phrases, and frequent cadences: a style that would later be defined as classical.

Throughout the late 18th century composers would continue to have to assemble musicians for a performance, often called an "Academy", which would, naturally, feature their own compositions. In 1781, however, the Leipzig Gewandhaus Orchestra was organized from the merchants' concert society, and it began a trend towards the formation of civic orchestras that would accelerate into the 19th century. In 1818, Boston's Handel and Haydn Society was founded, in 1842 the New York Philharmonic and the Vienna Philharmonic were formed, and in 1858, the Hallé Orchestra was formed in Manchester. There had long been standing bodies of musicians around operas, but not for concert music: this situation changed in the early 19th century as part of the increasing emphasis in the composition of symphonies and other purely instrumental forms. This was encouraged by composer critics such as E.T.A. Hoffmann who declared that instrumental music was the "purest form" of music. The creation of standing orchestras also resulted in a professional framework where musicians could rehearse and perform the same works over and over again, leading to the concept of a repertoire in instrumental music.

## **Habeneck, Beethoven, and striving for excellence**

### **Performance standards**

In the 1830s conductor François Antoine Habeneck, in order to perform the symphonies of Beethoven, which had not been heard in their entirety in Paris, began rehearsing a selected group of musicians. He developed techniques of rehearsing the strings separately, notating specifics of performance, and other techniques of cuing entrances that were spread across Europe. His rival and friend Hector Berlioz would adopt many of these innovations in his touring of Europe.

### **Instrumental craftsmanship**

This was paralleled by a rapid standardization of instruments. The invention of the piston or valve by Stolzel and Blümel, both Silesians, in 1815, was the first in a series of innovations, including the development of modern keywork for the flute by Theobald Boehm and the innovations of Adolphe Sax in the woodwinds. These advances would lead Hector Berlioz to write a landmark book on instrumentation, which was the first systematic treatise on the use of instrumental sound as an expressive element of music.

The effect of the invention of valves for the brass was felt almost immediately: instrument-makers throughout Europe strove together to foster the use of these newly refined instruments and continuing their perfection; and the orchestra was before long enriched by a new family of valved instruments, variously known as tubas, or euphoniums and bombardons, having a chromatic scale and a full sonorous tone of great beauty and immense volume, forming a magnificent bass. This also made possible a more uniform playing of notes or intonation, which would lead to a more and more "smooth" orchestral sound that would peak in the 1950s with Eugene Ormandy and The Philadelphia Orchestra and the conducting of Herbert von Karajan with The Berlin Philharmonic.

During this transition period, which gradually eased the performance of more demanding "natural" brass writing, many composers (notably Wagner and Berlioz) still *notated* brass parts for the older "natural" instruments. This practice made it possible for players still using natural horns, for instance, to perform from the same parts as those now playing valved instruments. However, over time, use of the valved instruments became standard, indeed universal, until the revival of older instruments in the contemporary movement towards authentic performance (sometimes known as "historically informed performance").

At the time of the invention of the valved brass, the pit orchestra of most operetta composers seems to have been fairly modest. An example is Sullivan's use of 2 flutes, 1 oboe, 2 clarinets, 1 bassoon, 2 horns, 2 cornets (a piston), 2 trombones, drums and strings.

### **The importance of orchestration**

New orchestral effects were possible now that standing orchestras had been formed, winds and brass had been expanded, and had an increasingly easy time playing in tune with each other: particularly the ability for composers to score for large masses of wind and brass that previously had been impractical. Works such as the Requiem of Hector Berlioz would have been impossible to perform just a few decades earlier, with its demanding writing for twenty woodwinds, as well as a gigantic brass ensemble including six horns, eight trumpets, eight trombones, and three tubas.

### **Wagner's influence: the large orchestra**

The next major expansion of symphonic practice came, ironically, from Wagner's Bayreuth orchestra, founded to accompany his musical dramas. Wagner's works for the stage were scored with unprecedented scope and complexity: indeed, his score to *Das Rheingold* calls for no less than eight harps. Thus Wagner envisioned an ever-more-demanding role for the conductor of the theater orchestra, as he elaborated in his influential work "On Conducting". This brought about a revolution in orchestral composition, and set the style for orchestral performance for the next eighty years. Wagner's theories re-examined the importance of tempi, dynamics, bowing of string instruments and the role of principals in the orchestra. Conductors who studied his methods would go on to be influential themselves.

### **The 20th Century: recordings and motion pictures**

As the early 20th century dawned, symphony orchestras were larger, better-funded, and better-trained than ever before; consequently, composers could compose larger and more ambitious works. With the recording era beginning, the standard of performance reached a pinnacle. In recordings, small errors in a performance could be "fixed," but many older conductors and composers could remember a time when simply "getting through" the music as best as possible was the standard. Combined with the wider audience made possible by recording, this led to a renewed focus on particular conductors and on a high standard of orchestral execution. As sound was added to silent film, the virtuoso orchestra became a key component of the establishment of motion pictures as mass-market entertainment.

### **A counter-revolution**

In the 1920s and 1930s economic as well as artistic considerations led to the formation of smaller concert societies, particularly those dedicated to the performance of music of the avant-garde, including Igor Stravinsky and Arnold Schoenberg. This tendency to start festival orchestras or dedicated groups would also be pursued in the creation of summer musical festivals, and orchestras for the performance of smaller works. Among the most influential of these was the Academy of St. Martin in the Fields under the baton of Sir Neville Marriner.

With the advent of the early music movement, orchestras where players worked on execution of works in styles derived from the study of older treatises on playing became common. These include the London Classical Players under the direction of Sir Roger Norrington and the Academy of Ancient Music under Christopher Hogwood, among others.

### **Recent trends**

The late 20th century saw a crisis of funding and support for orchestras in Europe. The size and cost of a symphony orchestra, compared to the size of the base of supporters, became an issue that struck at the core of the institution. The drastic falling-off of revenues from recording, tied to no small extent to changes in the recording industry itself, began a period of change that has yet to reach its conclusion. Critics such as Norman Lebrecht were vocal in their diagnosis of the problem as the "jet set conductor" and the problems of orchestral repertory and management, while other music administrators such as Michael Tilson Thomas and Esa-Pekka Salonen argued that new music, new means of presenting it, and a renewed relationship with the community could revitalize the symphony orchestra.

In the meantime, orchestras made their way to the mass culture. Versatile composer Michael Jackson used symphonic orchestra to implement his artistic self-expression in postmodern music and neoclassical pieces (*Morphine*, 1997, *Childhood*, *Little Susie*, 1995, *Speechless*, 2001).