A HISTORY OF THE OBOE FROM ANTIQUITY TO 1750

THESIS

Presented to the Graduate Council of the North Texas State College in Partial Fulfillment of the Requirements For the Degree of

MASTER OF ARTS

by

Perry O. Stephens, B. M. E.

McKinney, Texas

August, 1955
The purpose of this study is to trace the development of the oboe and its use from the primitive double reed instruments to the oboes of the Baroque Period. Toward the end of this period the oboe became thoroughly established as an important section in the symphony orchestra and has remained so to the present time.

The history of the oboe is not a clearly defined one since it dates from antiquity and has developed with other double reed instruments such as the bagpipe.

There have been recent attempts to assimilate the performance of music of the Baroque and earlier periods. Therefore, the quality of the sound and the limitations of the instruments must be considered in order to achieve an accurate reproduction of the performance. It is in this area that this study should be of some benefit.

The writer is primarily concerned with documentary references to the genesis of the oboe.
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Possibly the earliest oboe evolved from the wheat or oat stalk which later became the mouthpiece of the reed pipe (see Plate I). At first, in all probability, this stalk was a musical instrument complete in itself.¹

The oldest reed pipes known to us are preserved in the University Museum at Philadelphia, Pennsylvania, and were found in a royal cemetery in Ur, Mesopotamia. Their approximate date is 2800 B.C. These reed pipes, composed of two slender silver tubes with four finger holes each, were used in pairs which formed an angle and diverged to the mouthpiece.² Galpin gives the length of these pipes as

¹Kathleen Schlesinger, The Greek Aulos, p. 46. Schlesinger played on a reproduction of an original oat straw pipe contained in the museum at Helsingfors, Finland; however, this was a beating- or single-reed type of mouthpiece cut in the oat straw itself. The equidistant holes were cut in the side of the straw and gave the tetrachord of the Dorian harmonia.

²Curt Sachs, History of Musical Instruments, pp. 72, 98. These reed pipes were forerunners of the oboe because a double reed was employed as the sound maker. The double reed is made of two blades of cane or tough grass, one on top of the other. The lower ends bound together form a tube which is inserted into the upper end of the instrument. Sachs states that all geminated oboes were divergent, that only clarinets (single beating-reed instruments) were tied closely together without forming an angle.
approximately ten and one-half inches and the diameter of the bores three-sixteenths of an inch. Unfortunately, the reeds found with these pipes are not preserved well enough to enable an accurate measurement to be made.

Schlesinger cites that the pair of silver pipes discovered at Ur are of Sumerian origin. She discusses Galpin's experiments on a facsimile of these pipes. Galpin used a beating-reed mouthpiece and a double-reed mouthpiece on these instruments with the same results. The notes he obtained were c, d, e, f-sharp, and g-sharp, which he claimed was the standard scale of the Sumerians. Schlesinger performed on a facsimile of these pipes with three different lengths of reeds. The results were the Hypolydian, Dorian, and Phrygian modes. She claims that the increment of distance is variable within limits, imposed by the lay of the fingers and the length of the resonator; however, modality is ultimately the affair of the mouthpiece.

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4 See "Reed," II, Willi Apel's *Harvard Dictionary of Music*. The single beating-reed used by Galpin for his experiment was cut from a cylindrical section of reed cane in such a way as to leave a single slender fragment of cane remaining attached at one end. The fragment was cut from the cane at an angle so that the resulting hole would be smaller than the fragment. Thus the fragment, when set into motion, could not pass through the hole, but would beat against the walls of the cylinder from which it was cut.

The single pipe was the first to appear, and it is well exhibited on a lapis-lazuli seal found in one of the most ancient dynastic tombs at Ur (c. 2700 B.C.). A monkey, surrounded by animals in Elamite style, is depicted playing the pipe. There are other seal impressions showing a similar subject, and the records indicate that the pipe was sometimes made of copper. The name among the Sumerians appears to have been ṇā (in Akkadian, nabu), a word still preserved in the Arabic nāw which includes both flute and reed instruments. It also corresponds to the Greek aulos and the Akkadian halilu, whence the Hebrew ḫalîl, a reed pipe.⁶

Oboes⁷ were created in the Semitic world, somewhere between Asia Minor and Arabia. This is confirmed by their Mesopotamian names. Instead of a Sumerian term adapted to Akkadian, the oboe had the Semitic name halhallatu equivalent to Hebrew ḥalîl, written with Babylonian wedges, which possibly has survived in šemšal, the name given to the oboe by the Kurds, the nomadic heirs of Mesopotamia. Both the Akkadian and the Sumerian names were written with the metal determinative, indicating that cane had generally been

⁶Galpin, op. cit., p. 17.

⁷Sachs, op. cit., p. 72. Sachs used the term "oboe" instead of "reed pipe" or various ancient names in discussing the genesis of the modern oboe.
supplanted by some metal, as with the two silver pipes in the University Museum in Philadelphia (see Plate I). 8

The double-reed pipe (oboe) had the Sumerian term šem, and the instrument is frequently mentioned in the temple ritual. The šem was often made of copper or bronze, as well as silver. When called gis har-har, it was made of wood or reed. 9

In a liturgy to Enlil (c. 2000 B. C.) "the shepherd sits down to play the reed of weeping (gi-er)," also recognizable under the name gis gu-sir, or "the instrument with the crying voice." The halil pipe of the Hebrews appears to have been employed in the same way, for in showing the destruction of Moab, the prophet Jeremiah (Jeremiah XLVIII: 36) cries, "mine heart shall sound for Moab like pipes . . . ." 10

The Lady Maket pipes, 11 now in the German Museum of Musical Instruments at Charlottenburg, were estimated to have been used approximately 1500 B. C. The four Maket pipes

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8Ibid. 9Galpin, op. cit., p. 16. 10Ibid.

11"The Recent Discovery of Egyptian Flutes and their Significance," Musical Times and Singing Class Circular, XXXI (October, 1890), 585-587. Lady Maket pipes were named after a female mummy who bore the name of Maket on a ring which she was wearing. These pipes were found by the archaeologist Flinders Petrie in the town of Kahun, a town sixty miles south of Cairo built by workmen employed to construct the pyramid of Usertesen II, a monarch of the twelfth dynasty (approximately 4500 years ago).
pipes appear to be made of thin cane or hollow water reed called *arundo donax* which still grows about Cairo. They were of darkish yellow color when found. The pipes are said to have been used in pairs with one pipe having four finger holes and the other having three finger holes. The holes are oval in shape and get progressively smaller toward the mouthpiece end. The length of the four-holed pipe is seventeen and one-half inches with the holes at an equal distance of one and three-eighths inches. The three-holed pipe is seventeen and one-eighth inches long with holes one and three-eighths inches apart.\(^{12}\) The Maket pipes were double pipes with separate mouthpieces. The pipes were divergent to the mouth forming an inverted letter V. They were kept separate in the mouth, and consequently offered many advantages over parallel pipes.\(^{13}\)

\(^{12}\) *Ibid.* The measurements are those of D. J. Blaikley, an instrument maker, who considered the first hole to be farthest from the mouthpiece. His complete measurements for the pipe with four finger holes are: length, seventeen and one-half inches; to the first hole, two and seven-eighths inches; this figure is undoubtedly from the end farthest from the mouth to the hole nearest that end; from the first to the second hole, one and three-eighths inches; from the second to the third hole, one and three-eights inches; from the third to the fourth hole, one and three-eighths inches; and from there to the end, ten and five-eighths inches. These figures total seventeen and five-eighths inches instead of seventeen and one-half inches as stated by Blaikley; also, the separate figures for the three-holed pipe total six-eighths of an inch more.

\(^{13}\)"Two Egyptian Flutes." *Musical Times and Singing Class Circular*, XXXI (December, 1890), 713-716.
These pipes were tested by D. J. Blaikley, M. Loret, and K. Schlesinger with double and single reeds as well as flute mouthpieces. Schlesinger received her best results with a small double-reed mouthpiece five inches in length (.130 millimeters), with vibrating sections .031 millimeters in length and only one and one-half millimeters in width. With this reed mouthpiece she received a C of 128 vibrations per second, and Blaikely was amazed with the beautiful tone "like a bassoon" from such a small reed attached to the pipe. Blaikley used a stiff beating-reed and a modern oboe reed for his tests.\textsuperscript{14}

The Mesopotamian names \textit{halhallatu} and \textit{imbubu}, or \textit{ebubu}, correspond to the Hebrew \textit{abub} and \textit{halil} which are traced by a rabbinic tradition to the time of Moses (1250 B. C.). This story reads:

\begin{quote}
There was a pipe of cane in the temple, well made and polished, and it came from the days of Moses. The king ordered it to be covered with gold, but it loses its soft timbre. The cover was then removed, and the sound was soft again.\textsuperscript{17}
\end{quote}

Covering the lining with metal foil was not unusual in antiquity. The Talmudian tractate \textit{Kelim} XI:6 mentions \textit{halilim} both of solid metal and covered with metal. However,

\textsuperscript{14} Schlesinger, \textit{op. cit.}, p. 107. Schlesinger records and compares the measurements of the Lady Maket pipes as well as the results obtained from performance tests on pages 420-427.

\textsuperscript{15} Sachs, \textit{op. cit.}, p. 118.
Silver Pipes of Ur

Aulos

Plate I.—Ancient Double-Reed Pipes
the tractate *Arachin* says expressly that one did not play on metal pipes; cane pipes were favored because their sound was more pleasant (אָרָב). The tractate *Gmara* adds: "The pipe is called *halil* because its sound is sweet (*hāla*)." This etymology is incorrect. According to Sachs *halil* came from the verb *hālāl* meaning "pierced" and is identical with the Akkadian *hālilu*. The term *abūb* likewise derived from a verb meaning "pierced." Galpin agrees with Sachs on the translation of *hālil*, but attributes that the meaning "pierced or bored" refers to the form of the tube instead of the sound. The *imbubu* mentioned above by Sachs was a double beating-reed pipe, tapering in shape (conical) and was played singularly or in pairs. The pipe was introduced from Syria where its name was *abuba* (Arabian, *imbub*), and its female performers were known in Rome as the *ambubajae*. It is identical to the *gingras*, which is high-pitched; being conical, the pipe would sound an octave above the cylindrical *halilu* and *halhallatu*. The *passu* was a reed pipe with a conical outline which employed the double-reed mouth-piece. The *passu* appears on a carved ivory box from Nimrûd. No dates are given for this instrument; however, the Hittites and the Cypriotes knew it well, and it appears on Assyrian bas-reliefs. The sound of the *passu* was an incentive to bravery and frequently was used in martial display.\(^{17}\)

No artist, whether Babylonian, Assyrian, Iranian, Phoenician, Hittite, Egyptian, Greek, or Etruscan, ever depicted a flute before 1000 B.C. All over the ancient world pipers used the double oboe. The best translation of the Greek term aulos (plural, auloi) and the Latin equivalent tibia is "pipe." The Septuaginta translated ḫālîl as aulos, and the Vulgate translated ḫālîl as tibia. The pipes depicted on Greek and Roman vases and reliefs are double oboes of oriental shape, the sound of which could be as shrill and exciting as their relatives the bagpipes of modern Scotch regiments. Many paintings and reliefs show the player wearing a leather band which passes over the mouth and ties at the back of his head, the leather band being held in place by a throng running over the top of his head. The leather band, called phorbeia by the Greeks and capistrum by the Romans, had two holes just large enough to allow the reed pipes to enter the player's mouth. This contrivance gave a regular pressure to the cheeks, which acted as bellows as they do with a glass blower. Not all reed pipes used this contrivance.

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18 The terminology "double oboe" is used by Sachs to indicate two reed pipes used as one instrument.
19 Sachs, op. cit., p. 119.
20 Ibid., pp. 138-139. The Greek phorbeia device is still used in Java and Madeira where the ancient double oboe was pictured in the first millennium A.D.
The Greek *aulos* consisted of a length of the hollow jointed river reed which was converted into a pipe by boring internally through the joints. The *aulos* frequently existed in pairs, and a survey of the vase paintings at the British Museum and elsewhere shows that most of the *auloi* played in pairs are of equal length.\(^{21}\) The reed pipe, single or double, was affixed with either a single beating-reed mouthpiece or a double-reed mouthpiece. Both types of mouthpieces were used by the Greeks.\(^{22}\)

The Greeks and Romans possessed many kinds of double oboes. The most important of these were the Phrygian pipes\(^{23}\) in which the two tubes differed in length, the longer one being curved and ending in a wide, trumpet-like bell; the finger holes were placed at different heights on either tube, and according to Prophrious\(^{24}\) the bore was narrow. The Lydian pipes\(^{25}\) had tubes of equal length with identical finger holes.

\(^{21}\)Schlesinger, *op. cit.*, p. 67. The length of the pipes is no criterion of a fixed or absolute pitch of reed-blown pipes. The pipes are resonators and the initiation of pitch is solely the affair of the mouthpiece with its increment of extrusion.

\(^{22}\)Ibid., p. 32.

\(^{23}\)The Greek name for the Latin Phrygian pipe is *auloi* ἀλμοῖ.

\(^{24}\)Sachs gives no additional information concerning Prophrious.

\(^{25}\)Lydian pipes were called *tibiae serranae* or Phoenician pipes by the Romans.
The pipes were made in several sizes and pitches. The Greeks distinguished parthenioi, or girls' pipes, as sopranos; paidikoi, or boys' pipes, as altos; teleioi, or perfect pipes, as tenors; hyperteleioi, or superperfect pipes, as basses. According to ancient writers, the earlier pipes had only four, or even three, finger holes. The bore of these pipes was narrow enough to exclude the production of fundamentals, so that overblowing meant a jump of only a fifth instead of the usual octave.26 Even with more than four holes, the pipe was restricted to melodies in one of the three types of tonalities on which Greek music was based. The three types of Greek tonalities were diatonically filled fourths, respectively called Dorian with the semitone placed at the bottom, Phrygian with the semitone in the middle, and Lydian with the semitone placed at the top.27 Only since the fifth century B.C. have the number and arrangement of the finger holes permitted playing in all three of these tonalities.28

According to Galpin a special class of ceremonial hymns was known as er-sem-ma, or pipe songs. The double pipe

26 For an explanation of overblowing, see W. Apel's "Wind Instruments," Harvard Dictionary of Music, pp. 815-816.
28 Sachs, op. cit., p. 139.
(šem), as well as the single pipe, was played in penitential processions during the eighth century B.C.:

To the House of the God with crying lament, and prayer let us go: the priest sings the song of woe with the hallowed little-drum (uppu), the hallowed kettledrum (lilissu), with the double pipe (halhallatu), the timbrel (manzu), and the hallowed drum (balag).\(^{29}\)

An interesting type of reed pipe is the kitmu, on which the reed was probably "covered (Akkadian, katāmu) by a cap of rush, gourd, wood, or horn, an improvement on earlier practice of placing the reed inside the player's mouth. It is mentioned in a list of late Semitic songs on a tablet found at Asshur and forms the accompaniment to seventeen love songs to be sung by women. It appears to have also been called kanzabu ("to cover over") and takes its place with the double pipe and stringed instruments in a hymn of praise written in the days of the later Sargon (eighth century B.C.) to the Goddess Nanâ. Extended research can find no earlier mention of it.\(^{30}\)

The Elgin\(^{31}\) auloi, preserved in the Graeco-Roman Department of the British Museum (approximate date, fifth century B.C.), are made of sycamore. One of the pipes is straight, the other slightly curved. Each has six finger holes bored

\(^{29}\)Galpin, op. cit., pp. 17-18. \(^{30}\)Ibid.

\(^{31}\)Schlesinger gives no explanation as to why the pipes were called Elgin.
at approximately equal distance. (See Plate I). When played by means of primitive, untreated double-reed mouthpieces, the straight specimen plays from the first hole (the hole farthest from the mouthpiece), used as a vent, the Dorian mode. Several mouthpieces, inserted at the same amount of extrusion from the resonator, have played the scale on a fundamental C at one hundred and twenty-eight vibrations per second over a period of many years without variation in intonation. By using mouthpieces of different lengths on the same pipes, the Phrygian, Lydian, and Hypolydian modes were obtained. The curved Elgin aulos played in the Lydian and Mixolydian modes with different extrusions of double-reed mouthpieces.\textsuperscript{32}

Schlesinger has found through experiments that the modality of an aulos can be changed by adding approximately twenty-eight millimeters of length with the double-reed straw mouthpiece without change of tonic. The holes remain the same distance from each other, but each hole has a different ratio of distance; therefore, a different mode is sounded. In ancient Greece such an aulos, when played, would have two bulbs, one attached to the end of the other, with an extrusion of the mouthpiece to .099 millimeters, and the aulete (aulos

\textsuperscript{32}Schlesinger, op. cit., p. 360. Schlesinger gives a complete record (pp. 413-420) of measurements of the Elgin auloi with tests involving as many as nineteen different mouthpieces.
performer) might add a third bulb after pulling the straw reed of the mouthpiece to an extrusion of .127 millimeters.  

There is a vase painting (480-450 B. C.) now in the British Museum picturing a piper holding two aulei in the left hand; one pipe is ready to play and clearly shows two bulbs and a reed mouthpiece; the right hand is fixing a bulb on the other pipe.  

Sachs states that no pipes were used in the first temple which was destroyed during 586 B. C.; however, the second temple established after the Babylonian Exile at the end of the sixth century B. C. used no less than two or more than twelve pipes. The pipers were employed twelve times a year—during the first and second Passover sacrifice, Passover Day, at Shvuot, and in the eight days of the tabernacles. The Talmudian tractate Arachin II:3 adds that the final cadence came from one pipe only, "to make it more agreeable." Sachs interprets this to mean that only one cane of the double pipe was used because the second pipe produced a drone.  

Sachs gives the following description of a concert piece that the piper Sakadas performed in 586 B. C. at Delphi during the Pythian games:

33Schlesinger, op. cit., p. 96.  34Ibid., p. 104.  35Sachs, op. cit., p. 120.
On his double oboe, he represented the contest between Apollo and the dragon in five movements: a prelude, the first onset, the contest itself, the triumph following victory, and the death of the dragon, with a sharp harmonic when the monster hissed out his last breath.  

According to Sachs instrument makers invented special contrivances that enabled the aulos to be performed in the fifteen types of Greek tonalities. One contrivance was the use of metal rings or collars which had corresponding holes that could be turned to cover or uncover holes of the pipe. The other contrivance was the use of little tubes or cup-shaped extensions which were placed into the holes of the rings to lower the pitch. Schlesinger confirms this information, but adds that Pronomus, the Theban (fifth century B.C.), was the first to devise an aulos suitable for every harmonia (scale) by inventing the device of sliding bands with their extra secondary finger holes. These bands were provided with handles, little rings or horns, to allow the piper to turn them round the bone pipe while a narrow fixed ring prevented their slipping down the aulos. Later these bands were fitted with short additional tubes named bombyxes, possibly because when fitted to the aulos the instrument resembled a caterpillar. The bands could be turned while

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performing, although they were affixed to the aulos before playing. This type of bone pipe has been found in Pompeii and is preserved in the Museo Nazionale, Naples, Italy.\(^3\)

Reese gives the following description of the use and development of the aulos during this time:

Double auloi with pipes of equal length were generally used at marriage ceremonies, the smaller representing the bride, the greater, the groom. The oboe mouthpiece—with a double reed—was a characteristic feature. (Translation of aules as a generic term, into flute is definitely wrong). The number of holes, at first three or four, eventually grew to as many as fifteen, and bands that could be turned round on the tube were added to assist fingers in closing holes not in use. Two writers stated that the improvements of Pronemos, the teacher of Alcibiades (fifth century B.C.), rendered Dorian, Phrygian, and Lydian scales all playable on one pair of pipes, whereas previously a separate pair had been used for each. Double pipes made possible the playing of a melody simultaneously with either a drone or simple accompaniment. Aristoxenos (fourth century B.C.) states that the full compass of a single pipe or pair of pipes was over three octaves—the total range of the Greek scales as given by Alypios (360 A.D.).\(^3\)

There has been much speculation as to the function of the bulbs on the bulb mouthpieces. The visible extrusion of the straw offended the aesthetic sense of the Greeks so they covered the visible part of the reed with olive-shaped

\(^3\)Schlesinger, op. cit., pp. 73-74. The Pompeian auloi shown by Schlesinger on p. 74 are not preserved very well, so the picture is not conducive to a complete understanding of the four instruments. The bands were not removed for examination of the tone-holes under them.

bulbs. These bulbs were made hollow and tubular at each end to fit into the pipe or into each other so as to form a continuous passage for the stem of the mouthpiece. Adhesion is secured by rows of waxed thread. To add or remove a bulb was a visible symbol of a change of mode. In order to get the best results, the straw mouthpiece should be an exact multiple of the pipe; however, the bulb extrusion could be used to alter any discrepancy in this relation. The word *hypholmion* (Greek, ὑφόλμιον) applies to these bulbs. The etymology of the word suggests that the *hypholmion* (bulb) was a support for the *holmos* (Greek, ὀλμός), a shallow, cup-shaped device fitted to the topmost bulb which concealed the entry of the actual reed tongue into the mouth of the piper. The *holmos* was only used on the simple *aulos*, although no example exists earlier than the one shown on the Pompeian *auloi* already mentioned. The straw reed mouthpiece was controlled by the lips and the bulb was not inserted into the mouth as some writers conclude.\(^4\)

Geiringer says that the double-reed mouthpiece of the *aulos* was not held between the lips, but was inserted bodily into the mouth. The cavity of the mouth served as a windbag, enabling the performer to continue blowing uninterruptedly in the Oriental manner while inhaling through the nose.\(^5\)

\(^4\)Schlesinger, *op. cit.*, pp. 70-71.

Galpin adds that the subule, the bulb pipes on which the rush bulb was placed over the beating reed, allowed more free vibration than when held inside the mouth and helped catch the moisture impeding its action. M. Loret considers these fragments as parts of the double beating reed itself, the growing rush stem, from which it was cut, having been contracted by binding artificially, in order to give more spring to the split and flattened end. A cincture of some sort is generally found on this type of reed.\(^2\) This cincture is mentioned above by Schlesinger as a means of adhesion for the bulbs to each other or the instrument.\(^7\)

The aulos had two types of mouthpieces which are similar to the mouthpieces affixed to the modern oboe and clarinet. Both mouthpieces have the acoustical quality to convert a cylindrical pipe into what is known as a closed pipe.\(^3\)

These primitive forms of mouthpieces in use upon the aulos obey the laws governing the vibrations of reeds, although these reeds have little in common with their modern descendants. In order to form a correct estimate of the characteristic behavior and possibilities of the aulos, it is necessary to understand the nature of its mouthpiece. The most simple type of double-reed mouthpiece was the stalk of

\(^2\)Galpin, op. cit., p. 18.

wheat or oat. Picked while soft, the shoot, cut between two knots, was slightly flattened at one end by careful pressure and stroking. When held between the lips at from one to two inches from the tip and blown with an even, gentle breath, the common wheat stalk was a musical instrument and emitted a soft, sweet note. This double reed is able to play a compass of an octave without a resonating tube. There is another species of double reed named *kalamos zeugites* which was described by Theophrastes (died 287 B.C.), who was the earliest writer to record a precise account of the growth and cutting of reeds for the mouthpiece of the *aulos*. The best *zuege* were cut from the middle joint of the whole reed, and few of these turn out well in the making. The middle sections of the reed cane are best for making mouthpieces because those cut near the root are very hard and are suitable for the right-hand pipe. The vibrating sections cut from the same section harmonize. Theophrastas adds that before the time of Antigenidas when the *aulos* was played naturally, the style of playing which preceded the elaborate style, the reeds were cut during the month of September; but these reeds thus cut did not become useful until many years

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44. The term *zuege* is used by Schlesinger to mean the double reed used on the *aulos*, whereas the term used for beating-reed mouthpiece is *syrinx*.

45. Antigenidas was a noted *aulete* during the time of Alexander the Great.
afterwards and needed much preliminary practice with the **aulos** to get the proper pitch. During Antigenidas' time the playing style was changed to an elaborate one. The cutting was also changed to the months of **Skirephorion** (June to July) or **Hekatombaion** (July to August), at the solstice or a little later. These reeds became useful in three years and needed very little preliminary playing upon.  

The music of the last Babylonian empire is referred to in a single sentence of the Bible which occurs four times (verses 5, 7, 10, and 15) of the third chapter of *The Book of Daniel*. Sachs says this book was written in Aramaic about 165 B.C., although some terms are influenced by Greek words. The sentence reads:

> As soon as you hear the sound of the garna, the **mašreqitā** (masrekitā), the qatros, the sabka, the psantrin, the **sumponiah**, and all kinds of **zmāra**, you shall fall prostrate yourselves.  

**Mašreqitā** is from the verb **šricā** which means "whistling" and designates any form of pipes; however, it was probably a double oboe. According to Sachs the term **sumponiah** has been erroneously translated as "bagpipe." He adds that bagpipes never existed in Israel. Sach's translation of **sumponiah** is "pipebags," bags used to carry reed pipes, such as found depicted on Greek vases.

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Burney states that Plutarch (46-120 A.D.) accredited Aristoxenus (fourth century B.C.) with the complaint that auloi are continually shifting their pitch and never remain in the same state. Among many expedients to which he says performers had recourse in order to palliate these defects in the intervals was the use of "wax" in the holes. The wax could be added or taken away as needed, implying that instrument makers lacked skill in the boring of holes. Burney concludes from Plutarch that if any part of the ancient aulos was like our oboe it must have been what was called the "tongue" ($\lambda\omega\tau\gamma\iota\varsigma$) (lingula). The tongues appear to have been essential to the use of the instrument, for the aulos could scarcely be made to "speak" without them. The tongues were removable and were carried around in little boxes called "tongue-cases" ($\lambda\omega\tau\gamma\iota\varsigma\kappa\varsigma\eta\iota\alpha$).

The aulos was used as an accompaniment to some Greek tragedies. Only one double aulos was used in a large theater. This does not necessarily mean the aulos was a very powerful instrument, for the Greeks had "vases" (echeia) which were used in theaters for the amplification of sound. These "vases" were made of brass or earthen ware, and were tuned.

49Charles Burney, *A General History of Music*, second edition revised, p. 349. Aristoxenus was a contemporary of Theophrastus and the most celebrated writer on musical subjects during Greek antiquity.

50Ibid., pp. 401-402.
in harmonical proportions of fourths, fifths, and eighths. In the larger theaters there was a vase to correspond with every sound in the Greek musical system, including all three genera. The vases were placed in cells or niches between the rows of seats occupied by the spectators, to which the voice of the actor had free passage.  

Plutarch expressly says that among the older artists the enharmonic genus was solely in use and preferred to the diatonic and chromatic genera because of its gravity. The use of the enharmonic genus could have been what Theophrastus meant when he referred to "natural" playing (see page 19), whereas the diatonic and chromatic genera might mean playing in an "elaborate" style.7 Burney admitted the possibility that the old musicians did not use the diatonic and chromatic genera because they were not schooled in that form of playing due to the radical changes in the auloi such as sliding bands and bombyxes (see page 15).52

It is difficult to determine the musical purpose of twin oboes. Varro, a Roman author (first century B.C.), gives a hint when he calls one of the tubes tibia incentiva and the other, tibia succentiva, but he does not explain the meaning of these terms. However, the word succinere, as used in the early Christian Church, designated the interjection of an amen or hallelujah with which the congregation

51 Ibid., pp. 134-135.  52 Ibid., pp. 50, 358.
responded to the psalmody of the soloist. *Incinere*, on the contrary, meant "intone." The Roman poet Propertius, contemporary of Varro, used *incinere* in connection with the words *varios ore modos*, to intone "various melodies with the mouth." This translation implies that one pipe gave the intonation and the other, the response; but Sachs claims this to be unintelligible because both pipes would have played alternately, and it would be hard to understand why a player would need two pipes. He thinks it would be more logical to suppose an intonation in the narrower sense, meaning to give a tone and to sustain it. Thus, the second pipe played the refrain while the drone supported it as in ancient Egypt and in the modern Orient.  

Sachs generalizes the music in Rome as follows:

> Within an era of nearly 2,000 years and within a gigantic empire, the style of playing probably changed no less than the styles of architecture and fine art. The single Phrygian oboist who accompanied the Greek drama and whom one poet wished to silence because of his 'loquacity,' certainly obscured the melodic idea with cascades of tumbling passages and roulades in the manner of modern Oriental pipers. His style might have been very different from the art of that oboe-girl who in the early morning came with the drunken Alkibiades to knock and shout at the door to attend Plato's symposium with Agathon. And both styles might have been different from that of the pipers in the musical competitions at the Pythian games in Delphi.

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54 Ibid.
According to Praetorius, Varro states in book three of *De Lingua Latinus* that pipes called *spondeica* had equidistant holes while pipes called *dactylica* had unequally spaced holes. In book one of the same work Varro says the *tibia phrygian sinistra* had two holes and the *tibia phrygian dextra* had one hole.\(^5\)

The cylindrical cane form of the oboe, like those oboes pictured of Mesopotamia and Egypt, must have been replaced by a conical model. Some Jewish coins stamped during Bar Kokba's revolt against Emperor Hadrian (132-135 A.D.) show pairs of wind instruments. These instruments had a stout shape, a reed-like top, a disk that supports the lips, and a bell at the end farthest from the mouthpiece like the modern Arabian *zamr* (oboe). Consequently, this oboe existed in Jewish Palestine at the beginning of the second century A.D. This statement is confirmed by an Arabian book of the seventh century A.D., *The Kitab Algani*, which refers to the *mizmar* or *zamr* and the *duff* as the martial instruments of the Jewish tribes of A-Hijaz.\(^6\)

The *aulos* was associated with pagan events and consequently, little concerning its development is recorded after the time of Christ. Clement of Alexandria (150-220 A.D.)

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\(^5\)Michael Praetorius, *Syntagma Musicum*, translated by Harold Blumenfeld, II, d.

\(^6\)Sachs, *History of Musical Instruments*, p. 120.
disapproved of the aulos for fear that it might carry pagan festivities to Christian ears.  

Reese gives the following account of auloi playing in India from the apocryphal Acts of Thomas (written before 230 A.D.):

And they left the ship and entered into the city, and lo, there were noises of auloi and water-organs, and trumpets sounded about them ... Now the aulos-girl, holding her aulos in her hand, went about to them all and played, but when she came to the place where the apostle was, she stood over him and played at his head for a long space: now this aulos-girl was by race an Hebrew.

According to Bessaraboff the conoidal tube has an acoustical affinity with the double reed. Both have the acoustical quality to overblow at the octave, and all partials of the harmonic series are sounded. The plan of coupling a directly controlled double reed with a cylindrical tube had several impractical problems which finally destroyed the combination. One problem is the fact that a cylindrical tube overblows at the interval of a twelfth (an octave plus a fifth), a feat which could not be accomplished by the double reed alone. Consequently, by making the bore of the tube one-half size smaller, the tube was made to sound an octave higher which left the double reed an interval of a perfect fifth to overblow. Thus, the tube was so narrow

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57 Reese, op. cit., p. 61.  58 Ibid., p. 57.

that the moisture of the breath would swell the wood or cane and make the passage smaller or close it completely. Furthermore, in order to increase the range, the cylindrical instrument would require a larger and more complex key mechanism than the conoidal instrument.  

The T'ang Dynasty (518-907 A.D.), deeply interested in fostering arts, seems to have brought the court orchestras to their highest evolution. Their orchestras numbered from five hundred to seven hundred members. In one of several graphic ground plans illustrating the arrangement of some of these orchestras, the conductor has 20 oboes before him, then 200 mouth organs in a second tier, 4 flutes and 128 lutes in a third tier, 120 harps in a fourth tier, 2 stone chimes to the conductor's left, and 2 bell chimes to his right, with an undisclosed number of drums behind the four chimes.

Farmer claims that the Arabic treatise of Al-Fārābī (d. 950 A.D.) is the oldest work describing musical instruments of the woodwind family. The instruments described

60 Nicholas Bessaraboff, Ancient European Musical Instruments, p. 81.

61 The conductor referred to by Sachs was not a conductor in the modern sense. During the T'ang Dynasty the conductors were placed in front of the other musicians and played an instrument.

have notes corresponding to the notes on the lute. The mismar mentioned by Al-Farabi is a double-reed pipe; however, no details of measurement are given for the instruments described.63

The Arabian reed instruments known as the zamr and al-surnä, or al-surnai, were parents of the shawm and the dulcayna. Furthermore, the mediaeval xelumi must be the Arabian zulami invented at Baghdad at the eighth or ninth century A.D.64

The system of "forking," or a similar device, existed centuries before the transition from diatonic to chromatic genera in Europe and lasted long afterwards. "Forking" is a fingering device whereby two or more fingers are covering finger holes while at least one finger hole between those employed fingers is left open. The system of forking is used at the present time on all woodwinds.7 The earliest reference to forking is found in the Arabic treatise Kitab Al-Kafi fi l-Musiqi by Ibn Zaila (d. 1048 A.D.).65

Bessaraboff states that the Arabian zamr was the immediate predecessor of the mediaeval double-reed instrument in Western Europe.66 Galpin says the zamr was used before

64Ibid., pp. 140-141. 65Ibid., p. 262.
66Bessaraboff, op. cit., p. 113.
the Christian era and adds that the *zamr*'s popularity increased by its employment in the armies of the victorious Moslems. The *zamr* was an incentive to bravery for the Moslems, who are said to have introduced the instrument to the Western nations. 67 Sachs confirms that the Muhammedan conquest of Sicily and Spain from the Islamic world brought the *zamr* to Western civilization. 68

The reed of this Oriental oboe was not placed between the lips, but was thrust entirely into the mouth, the lips pressed against a metal disc which was attached to the reed tube. This manner of playing produced a raucous and uncertain tone. The *zamr* is still found in Turkey and Dalmatian districts where it is called *zurna* and *zurnas* respectively. In mediaeval Europe the instrument was known as *schalm* or *shawm*, and the reed was controlled by direct pressure of the lips. The metal disc was replaced by a *pirouette* (see Plate II) or funnel-shaped block of wood against which the lips were placed. 69

Double-reed instruments were known in France, Spain, Germany, and England, centuries before the Crusades; however,


the Crusades were responsible for the altered form and the prominent position which musical instruments of this class assumed in Western civilization at the close of the Middle Ages. In the supplement to Aelfric's *Saxon Vocabulary* of the tenth or early eleventh century England the Latin *aulcedus* is translated "reedpipere."\(^{70}\)

Geiringer states:

The shawm (Italian, *ciaramella*, Old French, *chalemie*), a primitive oboe with a conically bored wooden tube, a double reed, and finger holes, in all probability came to the West "via" Italy. The oldest known record of it comes from twelfth century Saracen Sicily. The reed was inserted wholly into the mouth in the Eastern manner, so that the performer was unable to control the tone color with his lips. Any suggestion of personal expression was avoided, and the sound of the instrument had all the power and astringent vigor demanded by the age.\(^{71}\)

In England the double-reed pipes of the shawm class, with an expanding bell and conical tube, first appear in Normal carvings as found on the Prior’s Door at Ely, erected about 1200 A.D., and in Barfreston in work of the twelfth century.\(^{72}\)

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71Geiringer, *op. cit.* , p. 60.

CHAPTER II

THIRTEENTH TO THE EIGHTEENTH CENTURY

Galpin states that instruments of the typical shawm class are mentioned in the English manuscripts Ormesby Psalter (1290 A.D.) now in the Bodleian Library, Oxford and in writings now in the British Museum which were formerly held by the Bishop Grandisson of Exeter. Galpin does not mention the specific name by which these instruments were called in the above manuscripts. Very little is known about the use of shawms in the early thirteenth century. According to Galpin the shawm does not seem to be one of the instruments which an accomplished jongleur was expected to play, but in later minstrels it was readily adopted. During the reign of King Henry III of England (1216-1272), a great deal was done toward advancing the popularity of the shawms by the establishment of watchmen (waytes) in London and other cities. These watchmen were employed to sound warnings, at the gates of the city as well as at the doors of important personages, with double-reed pipes which assumed the title of the watchman's craft and were called wayghte or wayte pipes. This popular instrument was also used to make merry at the midnight minstrelsies.\(^1\)

\(^1\)Galpin, *Old English Instruments of Music*, p. 160.
Although several types of reed instruments existed during the thirteenth century, the shawm (French, chalumeau from calamellus, the Latin word meaning "reed") is the ancestor of the oboe. The shawm belonged to a group of instruments called hauts (loud instruments), but was heard in pastoral as well as military scenes.²

Illustrations of the shawm become much more frequent during the fourteenth century, for the instruments had then begun to take a definite place in the wind bands of the period. On the Braunche Brass at Lynn a shawm and two long trumpets are represented as being played at the "Peacock" feast, perhaps given in honor of King John of France (1319-1364). It also adorns the Minstrels' Gallery at Exeter Cathedral, and the fourteenth century romance "Lybae us Pesconus" indicates that both trumes and shalmuses were used "for hyegh days in the halle." During the fourteenth century a lady shawmist is represented in the Loutrell Psalter. The shawm which she holds has "tuning" holes bored in the bell. These tuning holes are characteristic features of the earlier shawms and are still found in the Oriental instruments of the present day.³

Bessaraboff says that typical instruments of the shawm family made their appearance in Europe as early as the

²Reese, Music in the Middle Ages, p. 328.
³Galpin, Old English Instruments of Music, p. 160.
fourteenth century. The nomenclature of the word shawm, formerly spelled shalm, shamie, was akin to the German schalmei and the Old French chalemel. These words came from the mediaeval Latin calamus, a reed, a cane, hence, a pipe. The alternative names in English were bumbarde, pommer; in French, bombarde, haut-bois, gros-bois; in Italian, bombarde; and in German, bombardt, bombart, and pommer.¹

The fourteenth century Janizaries⁵ used the zurna (shawm) in their military organizations. The Janizaries developed martial music of the most effective kind. During battles the musicians were stationed by the standards of commanders and played incessantly, thus encouraging the fighting spirit of their men and instilling horror into their enemies. Bessaraboff says it is difficult to determine the instrumentation of the Janizary bands, which undoubtedly varied, but toward the end of their existence the staff band of the Agha (Commander in Chief) of the Janizaries was constituted as follows:

(1) Nine musicians playing the zurna (a kind of oboe, including their chief, who had the title of Mehter-bachi, the bandmaster; he also played a zurna.

¹Bessaraboff, Ancient European Musical Instruments, p. 113.

⁵Ibid., p. 20. Janizaries is a corrupted word form of the Turkish, Yenicheri, meaning "new troops." They were regular infantry organized in 1326 during the reign of Sultan Orkhan, an Ottoman Turk.
(2) Nine musicians playing the chaghana. This was the instrument which can be regarded as the ancestor of the Jingling Johnny, but it had no horsetails. More of this later. This particular group was somewhat exceptional, since it consisted of the pages of the Vezier and was under the leadership of the Bachchaush, an important officer of the Janizaries, who presented petitions to the Agha and corresponded to a commissioned officer in charge of the band.

(3) Nine musicians playing the Turkish bass drums. Their chief was the assistant bandmaster.

(4) Nine musicians playing the cymbals. They either stood back of, or followed, when on march, the players of the preceding group.

(5) Nine musicians playing naggāra, small kettle-drums. Players of this group were seated at state functions.

(6) Nine musicians playing the Turkish trumpet (buru).

The whole band consisted, therefore, of fifty-four players.

Bessaraboff gives the following description taken from F. D. Christian Shubart's *Ideen zu einer Asthetik der Tonkunst* (1806) of the sound of this unusual Turkish band:

'The character of this (Turkish) music is so warlike, that even cowardly souls throw out their chests. When one had the good fortune of listening to the performance of the janizaries themselves, whose music-choirs are usually between eighty and one hundred persons strong, then he must laugh indulgently over the clumsy aping, which among us mostly disfigures the Turkish music.' Of its rhythmic qualities he speaks thus: 'It loves the straightforward two-four time. . . Meanwhile, no other kind of music requires such firm, definite, and overpowering, predominating beat. Each beat is delineated so strongly, with such new manly accent, that it is well nigh impossible to get out of step.'

According to Galpin, shawms of the late fourteenth or early fifteenth century were made in various sizes of which the larger instruments were called bumbardes. Hence, Gower in the Confessio Amentis (1393) speaks of "the sounde of bumbarde and of clarionne with coremust and shalmele"; and the Squyr of Lowe Degree tells that "there was myrth and melody... with pipes, organ, and bumbarde."\(^8\)

The reed instruments of the early Middle Ages (before 1300) have undergone radical changes. The shrill double shawm of the Avars, with its two pipes bound together, and the simple clarinet type of reed disappeared. The clumsy, heavy instrument of the Middle Ages was made in two sizes after 1300. The first size was a small slender soprano instrument with a bell and seven finger holes; the second was a larger contralto instrument sounding the interval of a perfect fifth lower and called bombard or pommer. The shawm had the lowest hole duplicated, a hole on the right and left of the instrument so the performer could hold either hand below the other hand, while the unused hole was stopped with wax. The bombard had a key with a double touchpiece added so the performer could reach the lowest hole with either hand.\(^9\)

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\(^8\)Galpin, *Old English Instruments of Music*, p. 163.

At the close of the Middle Ages (1400) the shawm and pommer were used with instruments of contrasting character; their sharp, clear tone rendered them particularly suitable for use with trumpets and percussion. These shawms were symbolic of the pastoral mood.10

During the reign of King Edward III of England (1327-1377) three wayghtes were employed in his royal music, and Edward IV (1461-1470 and 1471-1483) retained thirteen minstrels, some with shalms and small pipes, plus a waite who was required to pipe watch four times nightly from Michaelmas to Shrove Tuesday and three times on summer nights. The waite was required to make "bon gayte" (a good noise) at every chamber door and office for security reasons. Galpin says such a minstrel waite is shown among five figures carved on the well-known Minstrel's Pillar in St. Mary's Church, Beverly; his companions are playing the pipe and tabor. Galpin adds that in a Nominale of the fifteenth century is found the mediaeval Latin word colomaula (calamaula, "a reed pipe, whence chalemelle and shawm) translated "wayte pipe."11

According to Galpin a bumbarde is depicted in the early fifteenth century carvings of the nave at Beverly Minster. However, not until the appearance of Sebastian Virdung's Musica getutscht und auszgezogen, published in 1511 in Basel,

10Ibid. 11Galpin, Old English Instruments of Music,p.163.
is a description given of the various forms of the shawms. Bessaraboff confirms that Virdung's work gives the earliest description and image of the shawms of which the smaller instrument was called schalmei and the larger one was called bombardet. A typical instrument of the shawm class had seven finger holes in the front, the lowest finger hole being duplicated for right- or left-handed players. The reed was affixed to the staple, a conical brass tubing, straight or bent, according to the size of the instrument. The small shawm had a "pirouette," (see Plate II) a turned piece of wood partly surrounding the reed and permitting the player to take only a certain length of the reed in his mouth. The larger shawm did not have a "pirouette," but the lowest hole of the larger instrument was covered by a key with a double touchpiece, which enabled right- or left-handed performing. The key mechanism was covered by a "fontanelle," (see Plate II) which served as a protection for the key mechanism and had little perforated holes to allow the air to escape when the hole was opened.

Carse confirms that Virdung knew only two shawms—a treble called shalmey and a tenor or alto sounding a fifth lower called bombardet. Carse says that both sizes of shawms were blown with a "pirouette":

12Ibid. 13Bessaraboff, op. cit., p. 113.
Plate II.--Seventeenth Century Oboes
This pirouette was a small detachable wooden lily-shaped contrivance (like an upturned bell) which was inserted in the narrow end of the instrument; the reed was fixed in the centre of the pirouette and projected above the rim of the bell. When being played the reed was, therefore, inside the cavity of the player's mouth, and his lips were pressed against the rim of the pirouette so as to form an air-tight wind-chamber. Sound generated in this way is rough and bagpipe-like because the player cannot compress the reed, and therefore cannot properly control the vibration nor make any undulation between a loud and a soft tone.\textsuperscript{14}

Virdung gave no information concerning the upper range of the shalmey and bombardt, but in 1528 and 1545 Agricola shows the same two instruments and allows them each a limited compass which ends at the top of the primary scale. Carse says that since the octave harmonics were not played, the shawms must have been played without direct pressure of the lips.\textsuperscript{15}

Daubeny tells us that King Henry VIII of England, who reigned from 1509 to 1547, had no less than twenty-five krumhorns\textsuperscript{16} and seventeen shalmes in his collection.\textsuperscript{17}

Galpin says the name howeboie in place of the word shalm first appears during the reign of Queen Elizabeth in the tragedy Gorbudoc or Porrex and Ferrex performed in 1561.

\textsuperscript{14}Adam Carse, \textit{Musical Wind Instruments}, pp. 121-122.

\textsuperscript{15}Ibid.

\textsuperscript{16}The krumhorn described by Praetorius and Mersenne is of the bassoon family.

\textsuperscript{17}Ulric Daubeny, \textit{Orchestral Wind Instruments}, p. 39.
The prelude of the fourth act of this tragedy had "Musicke of Howeboies" which represented furies and murder. The Scottish Treasurer's Account of 1562 informs that the "trumpeters" and "howbois" received a New Year's gift of ten crowns by order to Queen Mary, and in 1575 the music of the Lord Mayor of London's Pageant was varied by "a sett of hautboits playinge."\(^{18}\)

In the "Ballet Comique de la Royne" (1581) of Beaujoyeux there was an array of oboes, flutes, cornets, trombones, violas di gamba (precursor of the violoncello), lutes, harps, flageolet, and ten violins.\(^{19}\)

Galpin gives the various spellings of the oboe as hoboy, hoeboy, howboy, hautboy, howbois, howebois, hautboits; and says these spellings are derived from haut-bois, meaning "high wood," which appears to have been applied by the French to a form of the treble shawm with an improved bore or reed which enabled the performer to ascend three or four notes higher than was possible on the former instrument. In the seventeenth century, writers treat the oboe as identical with the shawm, but in English and Scottish literature the two are constantly mentioned as if distinct. At the Kenilworth Festivities in 1607 the magistrates of Edinburgh engaged

\(^{18}\)Galpin, Old English Instruments of Music, p. 165.

John Oley to provide five musicians with "chalmes and how-boyis" to play through and in the town every day at morning, noon, and night.\textsuperscript{20}

Praetorius in his \textit{Syntagma Musicum} (1619) gives more knowledge concerning musical instruments than any previous writer. He states that the pitch of musical instruments varies widely because in earlier times it was not the practice to play all kinds of instruments together. Therefore, instrument makers built wind instruments differently, tuning some high and others low. According to Praetorius the shawm is one of the instruments that sounds fresher and better when constructed to a higher pitch.\textsuperscript{21}

From Praetorius it is learned that the shawms of earlier times (before 1619) were called \textit{hoboy}s in England and were tuned a minor third lower than the chamber pitch\textsuperscript{22} of Germany. For example, the English F was the D of the German chamber pitch. This lower tuning is frequently employed in the Catholic chapels of Germany and Italy.\textsuperscript{23}

\begin{footnotes}
\textsuperscript{20}Galpin, \textit{Old English Instruments of Music}, p. 165.
\textsuperscript{22}Ibid., pp. 15-16. Praetorius tells that a distinction between choral pitch and chamber pitch is made in Catholic chapels. The choral pitch is a tone lower than the chamber pitch. Most of the organs in Germany during this time were tuned to the chamber pitch and were employed only at court dinners and other entertainments. The chamber pitch is more convenient for players of wind and stringed instruments.
\textsuperscript{23}Ibid.
\end{footnotes}
Praetorius gives the following information concerning pompers, bombardoni or bumbardes, and shawms:

Bumbardes (in Italian, bombardo or bombardone; French, hautbois; English, hoboy) take their name without a doubt from "a bombo," that is, humming, and are all, both large and small, designated by the term bumbarde or pommer. In Italian the large bass bumbarde is called bombardone, and the ordinary bass, bombardo. The tenor has four low metal keys with which it can be brought down to the G of the bass; thus a bass part can if necessary be played by it. For this reason it is called a basset. Following it is the Nicolo, the same as the basset in size and register; but this instrument has only one key and thus can be brought no lower than the C of the tenor. The alto bumbarde is called the bombardo piccolo. It is almost the same as the shawm in size, but has one key and is a fifth lower in pitch. Only the highest discant of these instruments is called shawm (Italian, piffaro; Latin, gingrina, because it sounds just like the cackling of a goose--from gingrire, to cackle). The shawm has no keys.

Most shawms are pitched a tone higher than the corresponding cornets and trombones.

Since early times, and still today, most wind instruments such as flutes, shawms and krumhorns, were constructed to tunings a fifth apart from one another within their proper sets.24

Praetorius adds that instruments of the same set can be employed in groups of threes--one instrument being used for the bass, one used for the tenor or alto, and another instrument used for the cantus. However, when a fourth instrument of the same set is to be added, the composition must be transposed a fourth lower to the hypoionian mode, thus making a cantus fictus25 out of the piece. If the piece is already

24 Ibid, pp. 36-37.

in F, it must be transposed a tone higher; this works out quite well for bumbardes and shawms. A fifth instrument added a fifth above or below is very difficult to match with the proper intonation in regards to the other four instruments, for the outermost instruments of the set are separated by five fifths or the interval of a seventeenth, which amounts to the same as a major third. However, this combination may yield workable results by careful arrangement of the music. At this point Praetorius recommends that a new tenor instrument should be constructed a fourth above the next lower instrument of its set rather than the usual fifth. By so doing, five-part settings of music could be played well since the outermost parts would be correctly in tune.26

Fig.1--Ranges of bumbardes as given by Praetorius

26Praetorius, op. cit., p. 37.
The ranges of the *bungardes*, as well as the instruments which Praetorius claims are needed to be built in order to facilitate five-part writings, are given in Figure 1.27

Carse has a chart which clarifies the ranges of the shawms given by Praetorius in Figure 1. The bottom four whole notes of measures 1, 2, and 3 are the extensions of the range downwards obtained by four metal keys. The lowest whole note in measures 4 and 5 is the note obtained by one metal key. The lowest whole note in measure 6 is obtained by closing the little-finger hole; and the quarter notes at the top of measures 1, 2, and 6 are notes obtained by octave harmonics. Measure 7 represents the natural range and the extension of the range upwards by octave harmonics. The numberless measures after measures 5 and 6 are said by Carse to be available instruments built a tone lower; however, Blumenfeld's translation indicates that these two are instruments that are needed. The German names of instruments in Figure 1 from measures 1 to 7 respectively are *grosse bass pommer*, *bassa pommer*, *tenor pommer basset*, *tenor pommer nicolo*, *klein alt pommer*, *discant schalmey*, *gar klein discant schalmey*. The instruments from the tenor downwards are depicted with "crooks" tubes similar to the modern bassoon bocal and are sounded with a "pirouette."28

Authorities agree that the *discant schelmev* is the direct predecessor of the modern oboe.

Donington describes the *shawm* as an instrument with a stiff double reed and a conical bore which is widest at the bottom. The tip of the reed acts for acoustical purposes virtually as a closed end. The bell is rather flaring and helps the high harmonics by aiding the color and brilliance. The net result is a tone of astounding pungency, described thus by Mersenne in his *Harmonie Universelle* which appeared in 1636:

> It is proper for large assemblies, such as Balls (though the Violins are now customary in their place), for Nuptials, for village Festivities, and for other public rejoicings, by reason of the grand noise which they yield, and the grand Harmony which they evoke, for they have the most powerful and the most violent tone of all instruments, excepting the Trumpet.  

Donington adds that when the reed is taken into the mouth, the *shawm* is moderately expressive as well as magnificently virile. This method of controlling the reed with the lips can easily be mastered by an oboe player and would contribute some novel colorings to the symphonic orchestra. However, if played with a box covering the reed, the *shawm* can be made raucous beyond belief. Donington says there is some doubt as to the box-covered reed technique as well as to the small ring or "pirouette" commonly but not always

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found encircling the reed, but they could be used to produce a similar effect.\textsuperscript{30}

Mersenne describes two sorts of shawms. One group named \textit{hautbois de poitou} corresponds to the true shawm and is shown in three sizes—a treble, a tenor with one key, and a bass with four keys (see Plate II). The other group appears to be a more advanced instrument referred to by the name \textit{haut-bois}. This instrument has no "pirouette"; the reed was presumably held between the lips. Carse says that the instrument has eight finger holes plus what appears to be two pairs of tuning holes. Carse adds that it is not clear how the eight note holes were controlled unless both little fingers were used. This instrument is outwardly like the later oboe and may mark the beginning of the transformation from shawm to oboe and lends favor to the accepted theory that the modern oboe originated in France. Carse divides the history of the oboe into two periods—the seventeenth century marks the end of the first and the beginning of the second period. Sometime during the seventeenth century the instrument was transformed into the later type of instrument from which the modern oboe developed. However, Carse states that the second half of the seventeenth century has no record of the progress of the events of the oboe.\textsuperscript{31}

\textsuperscript{30}\textit{Ibid.} \textsuperscript{31}Carse, \textit{op. cit.}, pp. 120, 125.
According to Carse the varied nomenclature of the shawms in England is shawm, shalm, chalme, bumberde, howeboy, howboye, howeboie, hautboit, hoeboy, hoby, and hautboy; in Germany, schalmei, schalmev, schalemie, schalemeye, pommer, bomhard, bombart, bombardt, bombardt, and pumhart; in France, hautbois, hautxbois, bombarde, chalmie, chalumeau, calemelle, chalemel, and chalemie; in Italy, piffere, bombardo, bombardone, and bombardino. After the transformation of these instruments during the seventeenth century, the names were oboe and hautboy in England, oboe and heboe in Germany, hautbois in France, and oboe in Italy.32

Donington describes this seventeenth century transformation of the shawm as primarily a decrease of the conical taper and a narrowing of the flare which undoubtedly reduced the pungency of the instrument.33

Geiringer says that by the seventeenth century the shawm (known in France as hautbois, meaning "high wood") and the pommer (known in France as the grosbois, meaning "low wood") were increased to seven types. The larger types were so long that long levered keys, whose delicate mechanism was protected by a perforated wooden barrel, were added with two wings so that the performer could use the right or left hand at will for the lower holes. The gross bass pommer, nearly

32Ibid., p. 120. 33Donington, op. cit., p. 84.
ten feet in length, could be played only if the bell was supported in church by a trestle, or in the open, as in processions, by the shoulder of a second man.34

Geiringer confirms that the shawm underwent a transformation during the seventeenth century, at which time the instrument was constructed more carefully and the bore was more narrow. This transformed instrument did not have the shrill, bleating tone of the older instrument; it was soft and more delicate sounding. The cup-shaped connection between the mouthpiece and the instrument was discarded so that the reed could be held between the lips. This manner of playing gave the player more control over the strength and quality of the tone. This instrument had six finger holes of which two, producing semitones, were doubled; it also had three keys.35

Among the new wind instruments of the second half of the seventeenth century, none surpassed the hautboy, or oboe, in the esteem of the musicians. Serious composers often turned to the oboe when they required a soprano wind soloist or a strengthened "ripieno" line. According to Halfpenny the oboe set a new standard of musical character in a wind instrument--it had weight and flexibility of tone in the true soprano range, it could be freely handled in a number of

related major and minor tonalities, and above all, it was representative of the new subjective and individual style which was slowly permeating instrumental music.36

Sachs states that shawms were replaced by oboes because the new "monodic style" ("rappresentative")37 needed instruments with the extensive range and expressive qualities of singers.38

According to Halfpenny the oboe originated in France about 1660 and reached England by 1674. The oboe served a casual military and civic apprenticeship and is hard to trace until it emerged in the later works of Henry Purcell.39

Hawkins gives several accounts of concerts of fiddles, hautboys, trumpets, and other instruments at music houses and in booths at fairs. These performances are described as unison concerts with a bass instrument sometimes added for the purpose of playing the ground bass to old ballads or country dance tunes which at this time was the only music that pleased the common people. Elaborate music houses are described in which organs and bands of fiddles and hautboys


are employed for listening enjoyment as well as for dance accompaniment. 40

Authorities agree that the oboe first appeared in the French opera Pomone by Robert Cambert, but they disagree as to the date of this opera. 41

The North Texas Library has a reduced piano score of Cambert's Pomone; however, no particular instrumental parts are specified. In hopes of procuring an example of the oboe part, this writer wrote to Richard E. Hill, the Reference Librarian of the Library of Congress. Hill's answer to the request follows:

The entry in Eitner's Quellen-Lexikon seems to imply that Robert Ballard published the score of Pomone in Paris in 1671, and then immediately goes on to say that a manuscript giving a few numbers from the opera has been preserved at the Bibliothèque Nationale, but that all other parts of the opera have been lost. We have a modern manuscript copy of the extracts preserved in Paris, but it turns out at best to be no more than a skeleton score which does not specify the

40Sir John Hawkins, A General History of the Science and Practice of Music, IV, 377-380. The first concerts in London were given free of charge at the house of Tom Britton from 1678 to 1714. The first house bearing the name of Music House was operated by Robert Hubert, alias Forges Gent, during the reign of Charles II. Music houses became numerous around London during this period.

41"Oboe," Grove's Dictionary of Music, III, 676. This article gives 1671 as the date of Cambert's Pomone while Bessaraboff, op. cit., p. 118 says: "the oboe made its appearance in the Paris Salle du Jeu de Paume de la Boutille on March 19, 1671, in Robert Cambert's Pomone." Geiringer, op. cit., p. 133 says that the oboe was prescribed in Cambert's Pomone in 1659. Galpin in A Textbook of Musical Instruments, p. 134, agrees with Geiringer.
instrumentation. This is not too unusual for French opera scores of the period, but if these fragments are all that has survived of the full score, it raises the question of where Weckerlin got the music for the piano reduction he published in 1881. It seems possible that the Ballard publication was not after all a full orchestral score, but rather a reduced score, and that Weckerlin used it as his source. We have been trying to check the point, but have not picked up anything that would definitely confirm the supposition—particularly since the Ballard publication is exceptionally rare and we have no copy of it.

Later in the paragraph, Eitner adds that Deldevez published the overture to Pomone. This would be in Deldevez's "Transcriptions et réalisations d'Oeuvres anciennes des compositeurs célèbres depuis Baltazarini jusqu'à Gluck." The overture appears on pp. 31-33, but it is an exact transcription of the Paris manuscript, except that Deldevez has transposed it from B minor to D minor, and suggested the instrumentation: "Dessus de Violon, Haute-Contre de Violon, Taille de Violon, Basse de Violon." He does add a note to the effect that the orchestra at that time included 13 musicians, and it is conceivable that one may have been an oboe player, but 13 men could also be kept busy with four string parts, and with nothing to indicate differently, it would seem dangerous to suppose that any of the parts in the Paris manuscript were intended for oboe.

In Purcell's Swifter Isis (1681), now in the British Museum, eight bars are marked for hautboy third treble. By 1690 the oboe made a regular appearance in most of the larger scores by Purcell. However, Purcell's solo, obbligato, and antiphonal use of the oboe indicates that the instrument was used in the meantime as an unspecified "ripieno" instrument during which its artistic possibilities became more generally known and liked.⁴²

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Purcell named and employed the tenor oboe in the score of his opera *Diocletian* (1690). Toward the close of the seventeenth century the drums and fifes of English military service were replaced by bands of hautboys, in the French manner.

The oboe used in Purcell's music appears in the contemporary drawings of Randle Holme's *Academy of Armoury* and is described in the *Talbot Manuscripts* which infer that Bressan and John Ashbury were making oboes in England during this time.

The hautboy proper, as distinguished from the family of shawms, was always a jointed instrument of three pieces which are connected to form one tube by a tenon and socket. This method of jointing woodwind instruments appeared during the seventeenth century. There is no certainty as to why or how the jointing of instruments became the vogue, but Halfpenny gives the following conjectures:

(a) The discovery of a deep boring process for small work on the lathe, which was not only more speedy

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43Galpin, *Old English Instruments of Music*, p. 165. Galpin speculates that the early and prominent use of the tenor oboe in England is responsible for the instrument being named *cor anglais*.

44Ibid.

but more accurate than the older method of hand-boring and reaming. The latter had to be done whenever possible in one operation for the whole length of the instrument, whereas the newer way—although it could not be carried to such a depth without fear of splitting the work at the normal cutting speed of the pole lathe—ensured alignment of the bore through all the joints, by their being centered on the lathe during the cutting.

(b) Better tonal results, from the bore being more sharply defined in profile and surface. Shorter joints could be more easily tuned by 'chambering,' or undercutting of finger-holes.

(c) The use of the instruments in ensemble in different places involved possible fluctuations in pitch. As they came to be used more and more solo and _obbligato_ in mixed ensembles, the pitch problem became increasingly acute. The earlier wind instruments were nearly all made and used in family groups, which were kept together in one place. Allowance for pitch variation was certainly made during the next century by the provision of alternative joints of different lengths, and this may possibly have been one of the original advantages derived from the jointing of instruments.

(d) The remaining factor is that of portability, which was of some account as musicians ceased to belong to courtly chapels where they played one or another of the instruments, provided by their masters, and began to possess, and specialize on, their own, moving about from place to place as required.  

The three-keyed English oboe of the seventeenth century (see Plate III) which was employed in Purcell's larger works is described by Halfpenny as similar to the contemporary French and German oboes in superficial appearance, although they differ in detail. The turnery or lathe operation is generally more elaborate than on the French or German _hautboys_ and reflects architectural influences of the period.

46Ibid.
At the top upper joint the tube swells into a graceful baluster which has a bobbin-shaped extension, while on the Continental instruments the baluster had a funnel-shaped expansion similar in appearance to the "pirouette" on the earlier shawms. A raised ring or moulding forms the base of the baluster just above the uppermost finger hole. The baluster has the important function of reinforcing the narrow upper end of the bore against the effects of the condensed moisture from the breath and the repeated insertions of the reed. The upper joint has three small finger holes of which the lowest hole is really two small holes drilled side by side with one slightly lower than the other; and the external part of the instrument is made flat where the two small holes appear so as to facilitate the closing of just one hole when needed. These holes are bored obliquely, the two uppermost holes bored upwards to the bore and the twin holes bored downwards. The slightly longer holes due to oblique boring have to do with the quality of the tone and not with intonation.\(^\text{47}\)

The top socket of the middle joint is shaped similar to the top baluster of the upper joint in order to balance the appearance of the profile and also serve as reinforcement at the socket. The middle joint has three finger holes, of which the uppermost hole is two small holes with one

\(^{47}\text{Ibid.}, \text{p. 15.}\)
lower than the other like the third hole of the upper joint, plus two holes covered by keys. All the holes of the middle joint are larger than the holes of the upper joint, and only the uppermost twin hole is drilled obliquely (upwards). A thick square-shaped ring is on the exterior of the middle joint below the bottom finger hole for the purpose of holding pivot pins which in turn hold the two e'-flat keys. The e'-flat keys are placed one on either side of the articulated lever of the c' key. The e'-flat keys on English instruments always follow the same pattern which is short, symmetrical, and dumb-bell shaped with circular touchpieces and pads; however, the Continentals used a square pad on this key. These keys are pivoted centrally at the waist in grooves cut in the square ring, lie longways on the instrument, and are very short. They key has a shoulder above and below the square ring to check unnecessary lateral movement. The e'-flat keys are held closed by flat springs which are fastened to the tube of the instrument and press loosely on the underside of the touchpieces. The c' key is on another ring below the e'-flat keys and is semicircular. A peculiar characteristic of the c' key is the key's being curved and fitted close to the tube so that by holding the little finger next to the wood, the finger could be rolled against the round edge of the key, thus half closing it for c' sharp.
Plate III.--Seventeenth and Eighteenth Century Oboe
The note appears in the earliest tablatures, but later the key was changed and the note disappeared.\(^48\)

These two key rings are always left completely encircling the tube and are invariably scribed with a lathe mark at their center-width for the purpose of marking off and drilling for the brass pins on which the keys pivot. The keys are made from sheet metal, usually silver, although brass was sometimes used.\(^49\)

The main features of the bell are the thick ring at the bottom and a pronounced flare. The ring has a V-shaped groove one eighth of an inch on the underneath side to prevent warping, to check splitting, and to lighten the weight of the instrument. The ring was undoubtedly necessary for reinforcement on the one sixteenth of an inch thickness of the walls. The profile of the bell's socket is like the socket of the middle joint. The narrow part of the bell has two diametrically opposed holes at the same level from which the lowest note, c', sounds when the c' key is closed.\(^50\)

The bore of this seventeenth century instrument as seen in Plate IV is very wide compared to modern oboes. The narrow part of the bore at the upper joint usually exceeds one fourth of an inch and expands, not necessarily uniformly, to eleven sixteenths of an inch at the bottom of the middle joint. The extreme top of the bore expands conically to

\(^{48}\)Ibid., pp. 13-14. \(^{49}\)Ibid. \(^{50}\)Ibid.
take the lapping of the reed. At the bell where the c' holes are bored the bore is cylindrical and exceeds the diameter of the middle joint. An abrupt expansion occurs from the holes to the lip of the bell joint. The purpose of the sudden conical flare is to soften the quality of and to provide greater tube length for the bell note. A similar abrupt expansion often occurs at the middle joint to provide greater tube length between the holes where the tenon and socket joints occur.

According to Bessaraboff the scale of this seventeenth century oboe was fingered in the following manner:

With all the holes covered, the oboe would give its lowest tone c'; the opening of the c' key gave the tone d', since this key is normally open and is located over the d' hole. The first (the lowest) finger hole, when uncovered, sounded e'; the second hole gave f'-natural. The third finger hole, being a double hole, was stopped in two ways: to produce f'-sharp one small hole only was uncovered; when both small holes were open the tone produced was g'. Likewise, the fourth hole with one small hole open would give g'sharp, and both small holes open would sound a'. The fifth hole gave b' and the topmost hole gave a very difficult and uncertain c''-sharp. The tone c''-natural had to be cross-fingered. There was no octave hole in the rear to facilitate the playing of overblown tones. Yet the old oboe players, by stopping and increasing the air pressure, managed to reach as high as d'''.

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51 For acoustical purposes a conical tube is equal to two times the length of a cylindrical tube.


53 Bessaraboff, op. cit., p. 119.
Plate IV.--X-ray of the Jointed Oboe of the Seventeenth and Eighteenth Centuries
The earliest printed tutor for hautboy is of English origin and was printed by F. Heptinstall in 1695 under the title, The Sprightly Companion. The preface of The Sprightly Companion is as follows:

One would wonder the French Hautboy should obtain so great an esteem in all the Courts of Christendom, as to have the Preference to any other single instrument. Indeed it looks Strange at first Sight: But on the other hand, if a Man considers the Excellency and Use of it, this Wonder will soon vanish: . . . For besides its inimitable charming sweetness of sound (when well played upon) it is also Majestical and Stately, and not much Inferior to the Trumpet: and for that reason the greatest Heroes of the Age (who sometimes despise Strung-Instruments) are infinitely pleased with This for its brave and sprightly Tone. And whereas most other single Wind-Instruments (especially the flute) go very high, for want of the lower Notes, that is is impossible to play upon them in consort with the Violin in C. The Hautboy is free from this defect, and may be played upon in consort, without transposing or advancing the Key.

Some Men, I must confess, endeavour to Decry the Hautboy, pretending the learners must blow so hard, that it is apt to bloat their faces and prejudice their Lungs: But this is a meer Mistake, as will be found on Experience; For all that play upon this instrument, to a reasonable perfection, know, that with a good Reed it goes as easie and as soft as the Flute.

Now since the Hautboy is so fine and useful an Instrument, and so portable a Companion; Pity it is, no Introduction for playing upon it was ever extant in print. 'Tis for that Reason alone I have now published this small Piece, which contains such exact Rules and Methods for that purpose, that there is nothing wanting, only the Time; for which I refer you to the Apollo's Banquet; in which is not only the best Instruction for time, but above a Hundred Tunes proper for this Instrument; so that any man, without the Trouble of Charge of a Master, may, in a little time, arrive to a Perfection therein: Which is the only Aim and Design of Yours, J. B. 54

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According to Halfpenny the initials "J. B." stand for John Banister the Younger who died in 1735. The flute referred to in the preface was probably a treble recorder which is pitched a fourth higher and has a weak low register. Halfpenny conjectures that the hautboy supplied a need for a wind instrument capable of covering the medium treble range with agility, flexibility, and certainty, yet not too shrill, but able to effectively contend with a large body of stringed and keyboard instruments without being too loud for use in a small chamber.\footnote{Ibid., pp. 357-358.}

The Sprightly Companion throws light on the technical methods employed in the first epoch of the hautboy's history. The instrument described in this tutor is the three-keyed Baroque instrument (see Plate III) of which the only contemporaneous specimen still surviving in England is formerly of the Galpin Collection, but not owned by Eric Halfpenny. Banister specified using the left hand uppermost and working the two brass keys with the little finger of the right hand. His failure to state the alternative position of the hands does not imply that the instrument was not equipped with the duplicate key. However, it does suggest that the left e-flat key was at this time a mere convention, put on for appearance. This is supported by the fact that the instrument mentioned
above has the left-hand key complete in every particular except its note hole has never been bored. 56

Banister gives the oboe's range as two octaves from c' to c'''', with the following instructions for overblowing, in order to reach the notes of the second octave ("alt notes"): Note when you come up to D "sol" "re" in "Alt" you must then blow harder, and by that means you make the note an octave higher without removing your fingers. As for example, when you stop D "sol" "re" below, blow harder and it will be eight notes higher, and so for the rest of the notes in "Alt." 57

Contemporary tablatures rarely support the idea that this instrument was "chromatic" in the modern sense. The chromatic alterations of this instrument are treated as alternative intonations or mutations from the main notes of the instrument's scale. Banister shows a fingering system for the chromatic scale which was not standardized until about 1750. Thirty-five whole- and half-tone shakes are noted in this tutor, although many of the shakes are incorrect. 58

Paisible 59 contributed seven tunes to this tutor, five of them bearing the signature of two flats, and the remaining

two having one flat. The first two tunes are in G minor, using F-sharp and C-sharp accidentals. The third tune is without A flat in the signature with no accidental before the note where it occurs. The fourth tune is in F major, while the fifth tune is in C minor. The sixth tune is in C minor with no A flat marked. The seventh tune is in F. Besides these seven tunes, there are eight marches with their titles, ranges, and key signatures given. All the numbers listed so far are single-line melodies with ranges from d' to b'' flat. A short Minuet and a Cybelle by Jean Baptiste Lully (1634-1687) complete the list of single-line tunes. These tunes have characteristic alternations between tenor and alto instruments. Two pieces of funeral music are the only numbers in parts. The first one in four parts by Paisible has two treble parts on one page, one above the other, with the tenor and the bass parts on the opposite page upside down. This piece is in C minor, in two sections respectively twelve to sixteen measures long. The bass and tenor lines are presumably for bassoon and tenor hautboy, although not indicated as such on the score.60 Tollet61


contributed the other piece in two eight-measure sections of three parts, two trebles and a bass, and is in C minor with A-flat accidentals. 62

Louis XIV entrusted Lully with the organization of military bands for which Lully composed and arranged a large amount of music. 63 These first French military bands consisted of oboes and drums, the authorities allowing generally two oboes and two drums to each company of infantry. Lully wrote for these bands in four parts—discant, alto, tenor, and bass oboe with two drum parts. 64

Carse evidently overlooked The Sprightly Companion, for he says that the first instructions for playing the oboe are in French, Véritable Manure d'apprendre à jouer du Hautbois, by Freillon-Poncein in 1700. 65


63Louis XIV, King of France (1643-1715) appointed Lully "sur-intendent de la musique de la chambre du Roy" in 1670.


65Carse, op. cit., p. 129.
CHAPTER III

THE CULMINANT PERIOD FOR THE OBOE
1700 TO 1750

The "pirouettes," the "wind caps," and the barrel-shaped protecting boxes for the keys are features of the oboe which did not surpass the seventeenth century. However, the double touchpiece e'-flat key (see Plate II) survived the eighteenth century, even though the right hand was employed underneath and the touchpiece for the left finger was no longer useful. One peculiarity of the **shawm** family which was continued during the eighteenth century is the tuning holes in the bell. These tuning holes were from two to six in number and were situated well out of the reach of the fingers. These holes were used for tuning the instrument by allowing additional air to escape the instrument. The tuning holes had no keys and could not have been closed by the player's knees as suggested by some writers.\(^2\)

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1 Carse, *Musical Wind Instruments*, p. 122. A "wind cap" is a wooden or ivory case perforated at one end, which completely encloses the reed and forms a wind chamber into which the player blows. It acts very similar to the "pirouette," the only difference being the wind cap provides an artificial wind chamber instead of using the cavity of the mouth as such. The wind cap is a characteristic feature of the **krumhorn**, although it sometimes appears on seventeenth century **shawms**.

Oboes of the early eighteenth century were provided with an extra top joint which was long enough to flatten the pitch of the instrument by a quarter of a tone. The oboe has been used to give the tuning A for the orchestra since before the time of Handel when it was frequently the only wind instrument in the orchestra. 

In 1705 the composer Philidor, as Louis XIV's music librarian, collected a number of military pieces which Lully had composed for the army. Many of these pieces are preserved in the Paris Conservatoire, from which the "Marche des Dragons du Roi" in four parts for discant, alto, tenor, and bass hautbois is given in Figure 2 as a representative example. In the alto and tenor parts of Figure 2 the G clef is substituted for the soprano and mezzo-soprano clefs which were respectively employed in the original score. Two drum parts which appear in the original score are left out of Figure 2. The bass part was sometimes played by a bassoon.

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4 Farmer, *The Rise and Development of Military Music*, pp. 46-47, 49: "The bassoon was a great improvement upon the bass oboe or curtal which usually supplied the bass in the bands of oboes. In fact, it is said that the name (originally 'basson d'hautboy') is derived from the early use to which it was put."
Fig. 2--Lully's "Marche des Dragons du Roi" for four oboes
The score and parts of Kuhnau's Christmas cantata, "Nicht nur allein am frohen Morgen," (now in the Town Library of Leipzig) is written for chorus, two violins, viola, bass, two oboes, two horns, drums, and continuo. The stringed instruments and the figured continuo are written in the key of A major. The violins and oboes play from the same parts, but have two different clef signs (see Fig. 3) of which the oboes in low chamber pitch played from the G clef (*) without use of accidentals. When oboes of low chamber pitch (see page 40) played in C they sounded one-half of a tone lower in B, while the organ and violins at Leipzig playing in the key of A at chorus pitch sounded a tone higher in B.

Besides the low chamber pitch described above there was a

Fig. 3--The soprano clef for violin in the key of A and the G clef for oboe in low chamber pitch as they appear on the same staff.

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5Johann Kuhnau (1660-1722), Bach's predecessor as cantor at Leipzig, was the first to employ oboes in church service.

6Apel, Harvard Dictionary, pp. 182-183. Continuo is a short form for basso continuo which refers to the bass part which was performed by the harpsichord or organ, together with a viola da gamba or cello.
high chamber pitch to which oboes were frequently tuned. The oboes in high chamber pitch sounded the notes as written.\(^7\)

The wind instruments were not expected to transpose while playing in consort with organ or strings. Consequently, the parts were written a minor third lower for an organ tuned to the choral pitch than they were for oboes tuned to low chamber pitch. For example, the autographed score of the cantata No. 152, Tritt auf die Glaubensbahn, composed by J. S. Bach at Weimar in 1715, has the flute and oboes in the key of G minor and the organ in the key of E minor. Bach's Easter cantata No. 31, Der Himmel lacht, die Erde jubiliret, 1715, is in the key of C major for organ and the key of E flat major for bassoons and oboes.\(^8\)

The Advent cantata for the same year, "Bereitet die Wege," No. 132\(^7\) has the oboes, contrary to Bach's usual custom, in the soprano clef; it was only necessary to substitute for this the violin (G) clef, and to strike out the three sharps in order to keep the same proportion.\(^9\)

Terry established Bach's preferential use of the ordinary C oboe. In a few compositions Bach allowed the

\(^7\)Philipp Spitta, Johann Sebastian Bach, translated by Clara Bell and J. A. Fuller Maitland, II, 676-677. Spitta's discussion of high and low chamber pitch is not in accord with that found in Nicholas Bessaraboff's Ancient European Musical Instruments, p. 378; also listed in Willi Apel's Harvard Dictionary of Music, p. 585. Bessaraboff states that low chamber pitch sounds a whole step low and high chamber pitch sounds one-half step low.

\(^8\)Ibid., I, 628.  \(^9\)Ibid.
compass of the oboe to fall below c'. In these exceptional cases a B-flat oboe, a whole tone lower than the ordinary instrument, or an alto A oboe, of the same pitch and compass as the oboe d'amore, but with an open bell instead of the pear-shaped bell of the oboe d'amore, was used. While at Mühlhausen (1707) Bach used the C oboe exclusively, and at Weimar (1707-1717) he used the B-flat oboe. At Cöthen (1717) and thenceforward he used the C oboe predominantly. Bach c'-d''' as the normal range of the oboe; however, he extends the range to e''' in cantatas Nos. 43, 128, 192, which are dated 1735 and probably indicate the services of a particular expert performer. He carries the B-flat oboe to d''' in the opening choruses of cantatas Nos. 10 and 35 and the A oboe to c''' sharp in the first chorus of cantata No. 17.10

Terry has a table (pages 207-222 of Bach's Orchestra) in which all of Bach's compositions that employ oboes are listed with the range of the oboe parts given for each composition. In cantata No. 21 the range for the oboes is given as B flat to d'''. However, the player did not accomplish this upon one instrument exclusively, for the C oboe was used in the movement in which d''' appears while the B-flat oboe was used for the other movements.

10Charles S. Terry, Bach's Orchestra, pp. 96-97.
As a general rule, Bach writes for the oboe in C, G, D, F, and B flat, the signature of two flats far outnumbering all others. Moreover, though not only on this account, he avoids changes of tonality in the course of the work, particularly those of a nature to complicate the task of players. When they do occur, an initial flat signature indicated a B flat oboe for the entire work, and one in sharps invited the ordinary instrument in C.\textsuperscript{11}

In ten of Bach's compositions (listed on page 98 in Bach's Orchestra) which employ oboes in unison with the violins, the oboes would have to descend to g, the lowest note of the violin register. Terry suggests that while writing out their parts, Bach, or his copyist, failed to indicate that the strings were carrying the oboes below their range; however, the error was corrected verbally during rehearsal. Cantata No. 169\textsuperscript{12} has the second oboe descending to g sharp in a unison passage with violins. Realizing the oboe's inability, Bach takes the second violins to e', leaving the oboe part uncorrected (see Fig. 4).\textsuperscript{13}

\begin{center}
\includegraphics[width=0.5\textwidth]{fig4}
\end{center}

Fig. 4.--Bach's cantata No. 169, measure 33, showing substituted e for g sharp in compliance with oboe's range.

\textsuperscript{12}J. S. Bach, Gott soll allein mein herze habe, p. 172.

\textsuperscript{13}Terry, op. cit., pp. 98-99.
Terry claims that Bach was reluctant to use c' sharp for oboes due to the risky and impracticable manner of obtaining the note by half closing the c' key. C' sharp occurs in thirty-four cantatas by Bach and most often the note is a rapid quaver or semiquaver. In the larger concerted works c' sharp occurs with equal rarity. However, the note could be played with ease and accuracy as the e' and d' sharp of the low A and B-flat oboes, which were used for twenty-three of the thirty-four cantatas employing c' sharp.\(^14\)

Bach usually prescribed for two oboes in his scores. More than two oboes appear in thirty-two cantatas, the "Sanctus" of the Hohe Messe, one secular cantata, and three orchestral pieces.

We might suppose that he deemed a trio or quartet of oboes inappropriate in any but festal scores but for the fact that over half the cantatas in which they appear are of a ferial character. Certainly the only one (No. 31) in which he employs four oboes is for a festal season, and three are in the scores of all those for Michaelmas. But, in general, the chief consideration that weighed with him was the availability of competent players. For his third oboe he uses, in place of the taille, an oboe da caccia in six cantatas (Nos. 6, 74, 87, 110, 128, 176), the two instruments being identical in pitch (f-g'). The taille, however, was a straight-tubed tenor with an open bell, while the oboe da caccia was curved, and, at a later period, had a closed bell similar to that of the cor anglais. Its employment in the six cantatas was evidently due to circumstances of the moment, for four of them (Nos. 74, 87, 128, 176) were performed consecutively (May 15, 19, 29, and June 5) in 1735.\(^12\)

\(^14\) Ibid., pp. 95-96. Terry lists the compositions employing c' sharp for oboes.

\(^15\) Ibid., p. 99.
Bach restricted usage of the oboe due to the loudness of the instrument. The oboe's quality is revealed in the four scores in which Bach prescribed for three varieties of oboes in C, B flat, and A. The oboe is used in the opening chorus and soprano-bass duet of cantata No. 80 to make the obbligato choral melody prominent. In cantata No. 110 the oboe is admitted to the bass aria to strengthen the strings for support of the trumpet obbligato, and in cantata No. 147 the oboe appears for the same purpose only in the movements in which the tromba is scored. Cantata No. 92 is the only instance where Bach substituted one oboe for another in the same movement of a composition.

Fig. 5—Bach's use of dynamic markings in measures 22 and 28 of cantata No. 92.

The music is of the tenderest nature so Bach prescribed for the oboe d'amore, but at the point where the melody "Mit Fried und Freud ich fahr dahin" allegro, p. 138 is introduced into the opening chorus, he marks the oboe parts "Oboe ordinaria," obviously for a more powerful ripieno.17

17Terry, op. cit., pp. 101-103.
Figure 5 is an example of Bach's use of dynamic markings of cantata No. 95 for oboe d'amore.

Bach wrote very few dynamic markings in his orchestral parts. Schweitzer says that when "piano" appears in the instrumental parts, Bach not only meant to play softly, but often meant for some of the instruments to cease playing. Consequently, much of the dynamic contrast in Bach's music is achieved by adding or subtracting the number of players. In the opening number and in the duet "Ich hab' vor mir ein' schwere Reis," from the cantata Ach Gott, wie manches Herzeliend (No. 58) the three oboes play with the strings in the "tutti" passages; however, in the passage where the voice enters, the oboes are marked "tacet" and the third oboe goes to the support of the soprano which sings a choral. 18

An examination of the oboe parts written by Bach and Handel reveals that the oboe had several mechanical and physical restrictions that were adhered to. Besides a limited playing range of two octaves and two whole steps (c' to e'''') the oboe had inadequate cross fingerings that made fast chromatic scales impracticable; fast consecutive wide leaps were difficult to manage; C sharp was sometimes avoided because of its uncertainty; and high notes d''', and especially e''', were generally avoided. The oboe could be

performed effectively at either a soft or a loud dynamic level as shown by the indicated dynamic markings of the composers themselves. However, Daubeny says that the bell of the oboe was plugged with cotton wool during Handel's time in order to subdue the harsh and noisy tone.\footnote{Daubeny, \textit{op. cit.}, p. 40.}

The earliest instrumental work of Handel that has survived is the set of trios for two hautboys and harpsichord, which is said by Chrysander to have been written in 1696 in the composer's eleventh year.\footnote{R. A. Streatfeild, \textit{Handel}, pp. 326-327. The hautboy trios were first published by Walsh in 1734.}

The trios referred to by Streatfeild are the \textit{VI Sonatas or Trios}, Opus 1, Vol. 27, pp. 58-90 of the \textit{Handelgesellschaft} publications. The six sonatas for two hautboys and harpsichord are written in the style of a canon. The oboes are employed fluently with a range exceeding two octaves (c' to d''''). Sonata I in B flat (Fig. 6) is a canon with strict imitation of the first oboe's part beginning on the sixth beat by the second oboe, which in measure 4 varies slightly from the first oboe part. In the ninth measure the second oboe starts with a new theme that is taken by the first oboe six beats later. The first part is never higher than b'' flat; however, the second part employs c''' and d''' several times as shown in measures 11 and 15 of Figure 6. The
second oboe part in measure 43 of the second movement, marked "allegro," illustrates the apparent facility with which the oboe could manage the low register.
Fig. 6—Handel's Opus 1, Sonata I, measures 1-6, 9-15 of the first movement and measure 43 of the second movement.  

The second movement of Handel's Opus 1, Sonata II in D minor with a 12/8 time signature is in the style of a

21 G. F. Handel, Handelgesellschaft, Opus 1, Sonata I, XXVII, 58.
canon with the first part imitated in the third measure by the second oboe. The second oboe has its climax on a dotted quarter note, d''' (shown in measures 4 and 5 of Fig. 7) followed by e''''. The second oboe part of the second movement employs the complete range limits of the oboe whereas the first part does not. In the thirteenth measure the second oboe has a low b that is difficult to explain, for it is below the range of the C oboe (see page 69).²²

Fig. 7—Handel's Opus I, Sonata II, second movement, showing highest notes in the second oboe part of measures 4 and 5 and the low b of the second oboe part from measures 13 to 14.²³

²²The e''' that occurs in the fifth measure would be above the range of a B-flat oboe.

²³Handel, op. cit., Sonata II, pp. 63-64.
In the thirty-fifth measure of the same movement of Sonata II the second oboe part employs high notes with wide leaps against the sustained note of the first part. (See Fig. 8).

Movement one, "adagio," of Sonata III begins in the key of B flat and modulates to E flat, B flat, G minor, C minor, and ends in E flat major. The last three measures of this movement have double stops for the second oboe. (See Fig. 9).

--Handel's Opus 1, Sonata II, second movement, showing wide leaps of the second oboe in measure 35.

Movement one, "adagio," of Sonata III begins in the key of B flat and modulates to E flat, B flat, G minor, C minor, and ends in E flat major. The last three measures of this movement have double stops for the second oboe. (See Fig. 9).

Fig. 9--Handel's Opus 1, Sonata III, showing double stops for oboe.

*Handel, op. cit.*, Sonata III, p. 68.
The second movement is in the key of E flat with only two flats in the key signature. In the nineteenth measure a note in parenthesis appears (Fig. 10) in the second oboe part apparently for harmonic reasons, for the piece is modulating to B flat major. The third movement, "andante," of this sonata is in C minor with only two flats in the key signature and 6/4 in the time signature. The movement ends on an E flat augmented chord. This movement requires remarkable wind control with slurred leaps upwards as large as perfect fifths and slurred leaps downwards as large as major sixths. The slur marking does not appear for leaps involving more than a perfect fifth upwards for the oboe as seen in Figure 11.

\[\text{Fig. 10--Handel's Opus I, Sonata III, showing interpolated note in parenthesis.}^{26}\]

\[26\text{Ibid., p. 69.}\]
Fig. 11--Handel's Opus I, Sonata III, third movement, measures 14-16, showing slurred leaps for oboes.

The fourth movement, "allegro," in E flat (6/8) has rapid notes for two oboes with the second oboe part written a major sixth above the first part. (See Fig. 12).

Fig. 12--Handel's Opus I, Sonata III, second movement, measures 24-26, illustrating virtuosity on the oboes.

27Ibid., p. 71. 28Ibid., p. 72.
Handel seems to be introducing a polyphonic style in *Sonata IV*, Opus 1, movement one, "adagio," in F major which starts with unaccompanied oboes in thirds (see Fig. 13).

![Fig. 13--Handel's Opus 1, Sonata IV, showing oboes in thirds.](image)

The composition becomes predominantly contrapuntal. The third movement, "largo," (3/2) has c''' sharp sustained for a measure. The note appears twelve times in this movement and apparently was a difficult note for oboes (see page 54).

The fourth movement, "allegro," (3/8) has c' sharp in rapid passages as seen in measures 60-66 of Figure 14.

![Fig. 14--Handel's Opus 1, Sonata IV, showing rapid C sharps.](image)

Sonata V in G major (4/4) closely resembles the French overture with an "adagio" movement followed by a canon-like "allegro" which ends in an eight measure "grave." The "grave" section employs trills on a c' sharp shown in Figure 15.

Fig. 15—Handel's Opus 1, Sonata V, illustrating C sharp trills.  

The third or last movement, "allegro," of Sonata V has wide leaps for oboes at a fast tempo. (See Fig. 16).

Fig. 16—Handel's Opus 1, Sonata V, illustrating wide leaps for oboes.  

31 Handel, op. cit., Sonata V, p. 82.  32 Ibid.
Sonata VI in D major (4/4), first movement, "adagio," is unusual in that it employs oboe trills on c'' sharp and leaps to and from c'' sharp. (See Figure 17).

Fig. 17--Handel's Opus 1, Sonata VI, measures 6-8, showing trills and leaps to and from c'' sharp.33

The third movement, "affetuoso," of Handel's Sonata VI in D major has sustained notes on d''' and c''' as shown in measures 21, 22, and 23 of Figure 18.

Fig. 18--Handel's Sonata VI showing sustained notes on d''' and c''' sharp.34

33Handel, op. cit., Sonata VI, p. 84.
34Ibid., p. 87.
The overtures to Handel's operas usually employ oboes as "ripieno" instruments in unison with the violins as in the opening measures of the "Ouverture" to Almira\textsuperscript{35} in Fig. 19.

Fig. 19—"Ouverture" to Almira illustrating oboes and violins in unison.

Dynamic contrast appears in measures 34 and 35 of this same overture as indicated in Figure 20.

Fig. 20—Handel's "Ouverture" showing dynamic markings ("pianissimo" and "forte").\textsuperscript{36}

\textsuperscript{35}Handel, \textit{op. cit.}, Almira, LV, 1. \textit{Almira} was composed in 1704 and first performed in 1705.

\textsuperscript{36}\textit{Ibid.}, p. 2.
Act I, Scene III of *Almira* has an introductory oboe solo (see Fig. 21) accompanied by *continuo* which is joined later by the soprano voice of the character Almira.

![Fig. 21--Oboe solo from *Almira*](image1)

Figure 21--Oboe solo from *Almira*.  

Figure 22 is another example of an oboe solo from *Almira* (Act I, Scene VI). However, this solo is accompanied with a counterpart by string ensemble. The oboe part is marked "piano" for the note c'''.

![Fig. 22--Oboe solo from *Almira* showing dynamic markings](image2)

Fig. 22--Oboe solo from *Almira* showing dynamic markings.

Handel composed concertos for various combinations of instruments under the title *Concerti Grossi*, which are popularly referred to as *Hautboy Concertos* due to the prominent parts assigned to the hautboys. The first two of

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these six concertos are in the key of B flat; the third, in G; the fifth, in D minor; and the sixth, in D major.\(^{39}\) Concerto I is scored for two flutes, two hautboys, two bassoons, two violins, two violas, and \textit{basso continuo}. However, the "concertino\(^{40}\) of the first and third movements consists of two hautboys and a violin, and the "concertino" of the second movement has two flutes, one hautboy, and one violin. Concerto I opens with a four and one-half measure "tutti" after which the oboes enter with a two-part unaccompanied duet for three measures (see Fig. 23). In measures 10-14 the first and second oboes are in unison with the first and second violins. In measures 29-33 the oboes double with violas.

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{handel-concerto-i-fig23.png}
\caption{Handel's Concerto I, employing oboe duet.\(^{41}\)}
\end{figure}

\(^{39}\)W. S. Rockstro, \textit{The Life of George Frederick Handel}, pp. 330-331. Handel's six \textit{Concerti Grossi} were first published by Walsh in 1734 under Opus 3.

\(^{40}\)The concertos of the eighteenth century employed a group of solo instruments called "concertino," which were accompanied by another group of instruments called "ripieno."

\(^{41}\)Handel, \textit{Concerto I}, XXI, 33.
In measure 41 the oboe has an antiphonal effect with the first violin (see Fig. 24), after which the first hautboy and violin are in unison as are the second hautboy and second violin on a separate staff.
Fig. 24—Handel's *Concerto I*, second movement

\[42\text{Ibid.}, \text{p. 6.}\]
The second movement of Concerto II has the first violin and first hautboy reading from the same part as does the second violin and the second oboe. The third movement starts with a pair of oboes in 3/8 time (see Fig. 25).

![Musical notation](image)

Fig. 25—Handel's Concerto II, third movement

The first movement of Concerto IV has the oboe and violin doubling; however, the second movement, "andante," has an oboe solo beginning in measure 9 (Figure 26) with moving parts against it by the compliment of stringed

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\(^{43}\)Handel, *Concerto II*, p. 22.
instruments. The third movement returns to the doubling of parts of hautboy and violin.

Fig. 26--Handel's Concerto IV, second movement.\(^4\)

Concerto V has the first and second oboes reading from the same part, with an occasional split of parts for harmonic reinforcement, while Concerto VI has the two oboes doubling with first and second violin respectively.

The Bach cantata No. 31 (see page 68) in the Bachgesellschaft publication edited by Wilhelm Rust in 1857, has no transposing instruments used; consequently, all the parts appear in C major. In the first and last sections of this cantata in nine sections, Bach scored for the largest orchestra at his disposal--trumpet, three trombones, timpani in C and G, three oboes, taille (tenor oboe), bassoon, first and second viola, and violoncello with continuo. The opening measures of the first movement, Sonata, employ all the instruments in unison except for the g that occurs three times in the first six measures. The g is below the range of oboes; consequently, d' is written for oboes instead of

\(^{4}\) Handel, Concerto IV, p. 39.
the g. Measures 1-6 of Figure 27 have arrows indicating the g's of the orchestral parts and the d's of the oboe parts.

Fig. 27--Bach's cantata No. 31, showing a restriction of oboe's range in unison with orchestra.

In the remainder of this movement the oboes double with other instruments except in the highest parts. Figure 28, showing the first oboe and first violin parts, indicates that the oboe possessed some quality which made it undesirable for playing b''' and c''' in consort with the violin.

Fig. 28--Bach's cantata No. 31, showing avoidance of high notes for oboe during unison passages with violin.

45 J. S. Bach, Der Himmel lacht, die Erde jubilirt, p. 3.
46 Ibid., p. 4.
The most prominent oboe part in this Easter cantata is the eighth section named Arie. An oboe solo starts the Arie with violoncello and continuo accompaniment. In measure 16 a boy soprano part is added, forming a trio (see Fig. 29). A string quartet playing the choral, "Wenn mein Stündlein vorhanden ist," is added to the trio; however, the oboe remains the most prominent instrument throughout the Arie which finished with thirteen measures of oboe solo with continuo.

Fig. 29--Bach's cantata No. 31, section 8, Arie, showing oboe, soprano, and continuo with figured bass part.

The six Brandenburg Concertos are among Bach's earliest orchestral works. However, only the first two of these

47 Ibid., p. 45.
concertos employ oboes. The Brandenburg Concerto No. I in F major (originally in D major but transposed by Bach when he used the first movement for his cantata No. 52, Falsche Welt dir trau' ich nicht) disregards the usual relations between a solo group of instruments and a "tutti," and there is no special subjects for different groups. The instruments employed are two horns, three oboes, bassoon, string quartet--strengthened in the soprano by a violino piccolo (a bright-toned and smaller violin usually tuned a minor third higher) and in the bass by violone grosso (double bass)--and a harpsichord. The concerto style is preserved between three groups--woodwinds, horns, and strings. Each of the three groups takes its turn as the solo group and unites at the climaxes. The third oboe parts are given in Figure 30 with the three different notes of the main theme for the violin shown in brackets on the first oboe part.

The second movement of Concerto I, "adagio," starts with an oboe solo accompanied with simple rhythmic chords by the remainder of the orchestra. The oboe solo is shown in

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48Spitta, Johann Sebastian Bach, pp. 128-129. Bach was commissioned by the Prussian Prince Christian Ludwig Margraf (1677-1734) of Brandenburg to send compositions for the Prince's band. Bach dedicated and sent these six concertos to Margraf of Brandenburg (March 24, 1721). "Bach calls them 'Concerts avec plusieurs instruments.' According to the custom of the time, this means the so-called 'Concerti Grossi,' in which, instead of one single instrument, several (generally three) play against the tutti."
Figure 31. Starting in measure 12, the oboe has the theme again with the piccolo violin starting one beat later in close imitation.

Fig. 30--The oboe parts of Bach's *Brandenburg Concerto* No. 1.

Fig. 31--Opening oboe solo from Bach's *Brandenburg Concerto* No. 1.

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49 Bach, *Brandenburg Concerto No. 1.*, p. 3.
50 Ibid., p. 53.
The oboe has a cadenza in measure 35, and the three oboes carry prominent parts in the "allegro." The Trio I of the last movement for two oboes and a bassoon is a good example of Bach's estimation of oboes. The first eight measures of the Trio from the Brandenburg Concerto I appears in Figure 32.

\[ \text{Fig. 32--Trio I from Brandenburg Concerto I for two oboes and bassoon.} \]

The Brandenburg Concerto II in F major employs F trumpet, flute, oboe, and solo violin for the "concertino" while string orchestra and continuo form the "ripieno" (thorough-bass). The oboe in unison with the other solo instruments plays the main theme which is reinforced by strings of the

\[ \text{Ibid., p. 15.} \]
"ripieno" group. Figure 33 shows the oboe part played in unison with the other instruments.

Fig. 33--Opening theme of Bach's Brandenburg Concerto No. II.\textsuperscript{52}

The main theme is inverted in measure 5 and still played in unison. The violin introduces another theme in measure 9 that is repeated by the oboe in measures 13-14 with violin and \textit{continuo} accompaniment (see Fig. 34).

Fig. 34--Oboe, violin, and \textit{continuo} parts of Bach's Brandenburg Concerto No. II.\textsuperscript{53}

\textsuperscript{52}Bach, Brandenburg Concerto No. II, p. 33. \textsuperscript{53}Ibid, p. 34.
In summary, the oboe of the eighteenth century was a popular instrument, and its unique timbre furnished a much needed variety in tone quality. This variety could only be achieved by those instruments—flute, oboe, trombone, trumpet—whose technical capabilities were parallel to the highly developed string instruments. The oboe came nearer to matching those technical capabilities than any other wind instrument, even though it could not go as low or as high in pitch as the violin. An examination of the music written during the eighteenth century tends to prove that the oboe could be performed as softly as any instrument and could be made to exceed the loudness level of stringed instruments, thus the instrument was performed successfully at all dynamic levels. The oboe lacked the key mechanism necessary for the performance of fast and accurate half-steps. Therefore, extensive chromatic scales were avoided, and most chromatic intervals were handled with care by the composers. Also, the chromatic limitations of the oboe are evidenced by the use of simple key signatures for parts employing oboes. The absence of an octave key for the oboe caused instability in the playing of high notes; consequently, the high notes (c'''', d''', e'''''') were generally avoided. Oboists were not required to transpose; however, instruments of three different pitches—A, B flat, and C—were used to extend the range.
The oboe was usually employed in unison with strings, although it was occasionally called upon to perform with other combinations of instruments and voices as well. It was used effectively by Bach and Handel as a solo instrument. The oboe was called upon for the expression of various moods such as joy, jubilance, boldness, sadness, fear, hate, rage, wrath, and love.

This work leaves the oboe at a time when it had become an established orchestral instrument, although it was lacking in many mechanical improvements.
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